



# **STIC Search Report**

## **Biotech-Chem Library**

STIC Database Tracking Number: 172709

TO: Ben Sackey  
Location: rem/5B31/5C18  
Art Unit: 1626  
Tuesday, December 13, 2005  
Case Serial Number: 10/776544

From: Barb O'Bryen  
Location: Biotech-Chem Library  
Remsen 1a69  
Phone: 571-272-2518

barbara.obryen@uspto.gov

### Search Notes

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Scientific and Technical Information Center

SEARCH REQUEST FORM

ME

Requester's Full Name: BEN SACKY Examiner #: 73489 Date: 11/29/05  
Art Unit: 1626 Phone Number: 2-0704 Serial Number: 101776, 544  
Location (Bldg/Room#): 16M533 (Mailbox #): 16M18 Results Format Preferred (circle): PAPER DISK  
\*\*\*\*\*

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following:

Title of Invention: Hydrogenation Catalyst

Inventors (please provide full names): Voit et al.

Earliest Priority Date: \_\_\_\_\_

Search Topic:

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

A catalyst composition consisting of:

- (a) iron or a compound based on iron or mixtures
- (b) from 0.001 to 0.3% by weight based on (a) of a promoter based on 2, 3, 4 or 5 elements selected from aluminum, silicon, zirconium, titanium and vanadium,
- (c) from 0 to 0.3% by weight based on (a) of a compound based on an alkaline earth metal and/or alkali metal and
- (d) from 0.001 to 1% by weight based on (a) of manganese.

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Searcher Location: \_\_\_\_\_

Date Searcher Picked Up: 12-12

Date Completed: 12-13-05

Searcher Prep & Review Time: \_\_\_\_\_

Online Time: \_\_\_\_\_

Type of Search

\_\_\_\_ NA Sequence (#)

\_\_\_\_ AA Sequence (#)

\_\_\_\_ Structure (#)

\_\_\_\_ Bibliographic

\_\_\_\_ Litigation

\_\_\_\_ Fulltext

\_\_\_\_ Other

Vendors and cost where applicable

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\_\_\_\_ Questel/Orbit \_\_\_\_\_ Lexis/Nexis

\_\_\_\_ Westlaw \_\_\_\_\_ WWW/Internet

\_\_\_\_ In-house sequence systems

\_\_\_\_ Commercial \_\_\_\_\_ Oligomer \_\_\_\_\_ Score/Length

\_\_\_\_ Interference \_\_\_\_\_ SPDI \_\_\_\_\_ Encode/Transl

\_\_\_\_ Other (specify)

=> fil jic pascal biosis confsci dissabs compendex japio inspec metadex ceaba  
scisearch

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=> d que l18; d que l19;d que l21

L1 13053 SEA (FE OR IRON OR FERROUS OR FERRIC) (2A) CATALYST#  
L2 851441 SEA ALUMINUM  
L3 1284065 SEA SILICON  
L4 179905 SEA ZIRCONIUM  
L5 535670 SEA TITANIUM  
L6 151665 SEA VANADIUM  
L7 363964 SEA PROMOTER#  
L15 383 SEA (L2 OR L3 OR L4 OR L5 OR L6) (5A) L7  
L18 15 SEA L1 AND L15

L1 13053 SEA (FE OR IRON OR FERROUS OR FERRIC) (2A) CATALYST#  
L2 851441 SEA ALUMINUM  
L3 1284065 SEA SILICON  
L4 179905 SEA ZIRCONIUM  
L5 535670 SEA TITANIUM

L6 151665 SEA VANADIUM  
L8 317782 SEA MANGANESE  
L14 263785 SEA (L2 AND (L3 OR L4 OR L5 OR L6)) OR (L3 AND (L4 OR L5 OR L6)) OR (L4 AND (L5 OR L6)) OR (L5 AND L6)  
L19 11 SEA L1 AND L14 AND L8

L1 13053 SEA (FE OR IRON OR FERROUS OR FERRIC) (2A) CATALYST#  
L2 851441 SEA ALUMINUM  
L3 1284065 SEA SILICON  
L4 179905 SEA ZIRCONIUM  
L5 535670 SEA TITANIUM  
L6 151665 SEA VANADIUM  
L8 317782 SEA MANGANESE  
L9 255922 SEA (ALKALINE EARTH OR ALKALI) (W) METAL#  
L10 1889598 SEA SODIUM OR RUBIDIUM OR POTASSIUM OR LITHIUM OR FRANCIUM  
L11 505683 SEA CESIUM OR STRONTIUM OR RADIUM OR BERYLLIUM OR BARIUM  
L12 404934 SEA MAGNESIUM  
L13 1173837 SEA CALCIUM  
L20 182 SEA L1 AND (L2 OR L3 OR L4 OR L5 OR L6) AND (L9 OR L10 OR L11 OR L12 OR L13)  
L21 11 SEA L20 AND L8

=> s l18 or l19 or l21

L115 35 L18 OR L19 OR L21

=> fil capl; d que l50; d que l69; d que l91

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L26 ( 1)SEA FILE=REGISTRY ABB=ON ALUMINUM/CN  
L27 ( 1)SEA FILE=REGISTRY ABB=ON SILICON/CN

L28 ( 1)SEA FILE=REGISTRY ABB=ON ZIRCONIUM/CN  
 L29 ( 1)SEA FILE=REGISTRY ABB=ON TITANIUM/CN  
 L30 ( 1)SEA FILE=REGISTRY ABB=ON VANADIUM/CN  
 L31 ( 1)SEA FILE=REGISTRY ABB=ON MANGANESE/CN  
 L32 ( 419952)SEA FILE=CAPLUS ABB=ON L25  
 L33 ( 367221)SEA FILE=CAPLUS ABB=ON L26  
 L34 ( 426702)SEA FILE=CAPLUS ABB=ON L27  
 L35 ( 69243)SEA FILE=CAPLUS ABB=ON L28  
 L36 ( 158215)SEA FILE=CAPLUS ABB=ON L29  
 L37 ( 84938)SEA FILE=CAPLUS ABB=ON L30  
 L38 ( 176602)SEA FILE=CAPLUS ABB=ON L31  
 L39 ( 3299)SEA FILE=CAPLUS ABB=ON ALKALI METAL COMPOUNDS/CT  
 L40 ( 4449)SEA FILE=CAPLUS ABB=ON ALKALINE EARTH COMPOUNDS/CT  
 L41 ( 5662)SEA FILE=CAPLUS ABB=ON L33 (L) CAT/RL  
 L42 ( 1508)SEA FILE=CAPLUS ABB=ON L34 (L) CAT/RL  
 L43 ( 2964)SEA FILE=CAPLUS ABB=ON L35 (L) CAT/RL  
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 L47 ( 609)SEA FILE=CAPLUS ABB=ON L39 (L) CAT/RL  
 L48 ( 557)SEA FILE=CAPLUS ABB=ON L40 (L) CAT/RL  
 L49 ( 3552)SEA FILE=CAPLUS ABB=ON (L41 AND (L42 OR L43 OR L44 OR L45))  
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 (L44 AND L45)  
 L50 8 SEA FILE=CAPLUS ABB=ON L46 AND L32 AND L49 AND (L47 OR L48)

Role CAT = catalyst use  
 }

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 L57 ( 426702)SEA FILE=CAPLUS ABB=ON L52  
 L58 ( 69243)SEA FILE=CAPLUS ABB=ON L53  
 L59 ( 158215)SEA FILE=CAPLUS ABB=ON L54  
 L60 ( 84938)SEA FILE=CAPLUS ABB=ON L55  
 L61 ( 5662)SEA FILE=CAPLUS ABB=ON L56 (L) CAT/RL  
 L62 ( 1508)SEA FILE=CAPLUS ABB=ON L57 (L) CAT/RL  
 L63 ( 2964)SEA FILE=CAPLUS ABB=ON L58 (L) CAT/RL  
 L64 ( 5300)SEA FILE=CAPLUS ABB=ON L59 (L) CAT/RL  
 L65 ( 5341)SEA FILE=CAPLUS ABB=ON L60 (L) CAT/RL  
 L66 ( 3552)SEA FILE=CAPLUS ABB=ON (L61 AND (L62 OR L63 OR L64 OR L65))  
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 (L64 AND L65)  
 L67 ( 113422)SEA FILE=CAPLUS ABB=ON PROMOTER#/OBI  
 L68 ( 6426)SEA FILE=CAPLUS ABB=ON IRON CATALYST#/OBI  
 L69 2 SEA FILE=CAPLUS ABB=ON L68 AND L66 AND L67

L70 ( 1)SEA FILE=REGISTRY ABB=ON IRON/CN  
 L71 ( 1)SEA FILE=REGISTRY ABB=ON ALUMINUM/CN  
 L72 ( 1)SEA FILE=REGISTRY ABB=ON SILICON/CN  
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 L74 ( 1)SEA FILE=REGISTRY ABB=ON TITANIUM/CN  
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 L80 ( 84938)SEA FILE=CAPLUS ABB=ON L75  
 L81 ( 16505)SEA FILE=CAPLUS ABB=ON L70 (L) CAT/RL  
 L82 ( 5662)SEA FILE=CAPLUS ABB=ON L76 (L) CAT/RL  
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 L86 ( 5341)SEA FILE=CAPLUS ABB=ON L80 (L) CAT/RL  
 L87 ( 3552)SEA FILE=CAPLUS ABB=ON (L82 AND (L83 OR L84 OR L85 OR L86))  
 OR (L83 AND (L84 OR L85 OR L86)) OR (L84 AND (L85 OR L86)) OR  
 (L85 AND L86)  
 L88 ( 6426)SEA FILE=CAPLUS ABB=ON IRON CATALYST#/OBI  
 L89 ( 1)SEA FILE=REGISTRY ABB=ON MAGNETITE/CN  
 L90 ( 227)SEA FILE=CAPLUS ABB=ON L89 (D) = *derivatives*  
 L91 2 SEA FILE=CAPLUS ABB=ON (L88 OR L81) AND L90 AND L87

=> s 150 or 169 or 191

L116 12 L50 OR L69 OR L91

=> fil wpids; d que 1101; d que 1114

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L92 ( 74848)SEA FILE=WPIDS ABB=ON MANGANESE  
 L93 ( 279221)SEA FILE=WPIDS ABB=ON ALUMINUM  
 L94 ( 300601)SEA FILE=WPIDS ABB=ON SILICON  
 L95 ( 48926)SEA FILE=WPIDS ABB=ON ZIRCONIUM

L96 ( 141500)SEA FILE=WPIDS ABB=ON TITANIUM  
L97 ( 34301)SEA FILE=WPIDS ABB=ON VANADIUM  
L98 ( 38125)SEA FILE=WPIDS ABB=ON PROMOTER#  
L99 ( 2988)SEA FILE=WPIDS ABB=ON IRON(2A)CATALYST#  
L100( 365)SEA FILE=WPIDS ABB=ON (L93 OR L94 OR L95 OR L96 OR L97) (3A)L98

L101 6 SEA FILE=WPIDS ABB=ON L99 AND L100 AND L92

L102( 2473)SEA FILE=WPIDS ABB=ON B01J023-74/IC  
L103( 644)SEA FILE=WPIDS ABB=ON B01J023-745/IC  
L104( 1061)SEA FILE=WPIDS ABB=ON B01J023-78/IC  
L105( 74848)SEA FILE=WPIDS ABB=ON MANGANESE  
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L107( 300601)SEA FILE=WPIDS ABB=ON SILICON  
L108( 48926)SEA FILE=WPIDS ABB=ON ZIRCONIUM  
L109( 141500)SEA FILE=WPIDS ABB=ON TITANIUM  
L110( 34301)SEA FILE=WPIDS ABB=ON VANADIUM  
L111( 120637)SEA FILE=WPIDS ABB=ON (L106 AND (L107 OR L108 OR L109 OR  
L110)) OR (L107 AND (L108 OR L109 OR L110)) OR (L108 AND (L109  
OR L110)) OR (L109 AND L110)  
L112( 86)SEA FILE=WPIDS ABB=ON L111 AND L105 AND (L102 OR L103 OR  
L104)  
L113( 38125)SEA FILE=WPIDS ABB=ON PROMOTER#  
L114 11 SEA FILE=WPIDS ABB=ON L112 AND L113

=> s l101 or l114

L117 16 L101 OR L114

=> dup rem l116,l115,l117

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PROCESSING COMPLETED FOR L115

PROCESSING COMPLETED FOR L117

L118 55 DUP REM L116 L115 L117 (8 DUPLICATES REMOVED)

ANSWERS '1-12' FROM FILE CAPLUS

ANSWERS '13-14' FROM FILE JICST-EPLUS

ANSWERS '15-22' FROM FILE PASCAL

ANSWERS '23-24' FROM FILE DISSABS

ANSWERS '25-28' FROM FILE COMPENDEX

ANSWERS '29-35' FROM FILE JAPIO

ANSWERS '36-38' FROM FILE CEABA-VTB

ANSWER '39' FROM FILE SCISEARCH

ANSWERS '40-55' FROM FILE WPIDS

=> d ibib'ed abs hitind 1-12; d iall 13-55; fil hom

L118 ANSWER 1 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:143035 CAPLUS

DOCUMENT NUMBER: 140:166542

TITLE: Packing shape and pressure drop performance of  
cylindrical hollowed catalyst particles for maximizing  
conversion in gas-phase reactions

INVENTOR(S): Combs, Glenn A.

PATENT ASSIGNEE(S): USA

SOURCE: PCT Int. Appl., 73 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004014549	A1	20040219	WO 2003-US25042	20030811
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2004043900	A1	20040304	US 2003-636784	20030808
PRIORITY APPLN. INFO.:			US 2002-402580P	P 20020812
			US 2003-636784	A 20030808

ED Entered STN: 22 Feb 2004

AB Heterogeneous catalysts for catalyzing gas-phase reactions consist of shaped high-performance catalyst particles with a diameter-height ratio of 0.5-1.0:1.0, in which the catalyst particle has a Relative Particle Size Parameter (RPSP), which is related to a pressure drop related to flow parameters, and an effective geometric catalyst surface area (GSA), in which the high-performance catalyst particle has a higher GSA for a



particular RPSP than would prior art catalyst particles. Preferably, the catalyst particle is a cylindrical ring catalyst in which the ring defines at least one standard shaped internal axial hole, such as an elliptical hole, an L-shaped hole, a rounded diamond-shaped hole, a slot hole, a pear-shaped hole, and a teardrop hole. The catalysts are especially useful in optimizing such reactions as CO<sub>2</sub> reforming and steam reforming of hydrocarbons, and the water gas shift reaction.

- IC ICM B01J023-00  
ICS B01J023-02; B01J023-04; B01J023-06; B01J023-08; B01J023-16;  
B01J023-18; B01J023-20; B01J023-40; B01J023-42; B01J023-44;  
B01J023-46; B01J023-58
- CC 51-11 (Fossil Fuels, Derivatives, and Related Products)  
Section cross-reference(s): 48, 67
- IT **Alkali metal compounds**  
RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)  
(support, catalyst particles containing; packing shape and pressure drop performance of cylindrical hollowed catalyst particles for maximizing conversion in gas-phase reactions)
- IT 7439-89-6, Iron, uses 7439-95-4, Magnesium, uses  
7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses  
7440-09-7, Potassium, uses 7440-32-6, Titanium, uses  
7440-45-1, Cerium, uses 7440-46-2, Cesium, uses 7440-47-3, Chromium,  
uses 7440-50-8, Copper, uses 7440-65-5, Yttrium, uses 7440-66-6,  
Zinc, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses  
7723-14-0, Phosphorus, uses  
RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)  
(catalyst particles containing; packing shape and pressure drop performance of cylindrical hollowed catalyst particles for maximizing conversion in gas-phase reactions)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L118 ANSWER 2 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:591127 CAPLUS

DOCUMENT NUMBER: 139:133336

TITLE: Hydrogenolysis process and catalysts for producing 3,4,5-trisubstituted toluene derivatives from their corresponding benzyl alcohols or benzaldehydes

INVENTOR(S): Bottke, Nils; Fischer, Rolf-hartmuth; Noebel, Thomas; Roesch, Markus

PATENT ASSIGNEE(S): Basf Aktiengesellschaft, Germany

SOURCE: PCT Int. Appl., 19 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003062174	A1	20030731	WO 2003-EP488	20030120
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,				

KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,  
FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF,  
BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  
CA 2473936 AA 20030731 CA 2003-2473936 20030120  
EP 1470094 A1 20041027 EP 2003-701527 20030120  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK  
BR 2003006939 A 20041214 BR 2003-6939 20030120  
JP 2005515248 T2 20050526 JP 2003-562059 20030120  
US 2005032627 A1 20050210 US 2004-500718 20040706  
PRIORITY APPLN. INFO.: DE 2002-10202837 A 20020124  
WO 2003-EP488 W 20030120  
OTHER SOURCE(S): CASREACT 139:133336; MARPAT 139:133336  
ED Entered STN: 01 Aug 2003  
AB 3,4,5-Trisubstituted toluene derivs. (e.g., 3,4,5-trimethoxytoluene) from  
their corresponding benzyl alcs. or benzaldehydes (e.g.,  
3,4,5-trimethoxybenzaldehyde) by hydrogenolysis over a catalyst system  
comprising hydroxides, oxides, or salts of  $\geq 1$  of the metals of  
copper, nickel, or cobalt.  
IC ICM C07C001-22  
ICS C07C041-18; C07C043-205; B01J023-755  
CC 25-9 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
Section cross-reference(s): 45, 67  
IT Alkali metal compounds  
Alkaline earth compounds  
RL: CAT (Catalyst use); USES (Uses)  
(alkoxides; in hydrogenolysis catalysts for producing  
3,4,5-trisubstituted toluene derivs. from their corresponding benzyl  
alcs. or benzaldehydes)  
IT 1313-59-3, Sodium oxide, uses 7429-90-5, Aluminum, uses  
7439-89-6, Iron, uses 7439-92-1, Lead, uses 7439-96-5,  
Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses  
7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium,  
uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses  
7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7,  
Tungsten, uses 7440-36-0, Antimony, uses 7440-38-2, Arsenic, uses  
7440-43-9, Cadmium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper,  
uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses  
7440-69-9, Bismuth, uses 7723-14-0, Phosphorus, uses  
RL: CAT (Catalyst use); USES (Uses)  
(in hydrogenolysis catalysts for producing 3,4,5-trisubstituted toluene  
derivs. from their corresponding benzyl alcs. or benzaldehydes)  
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT  
  
L118 ANSWER 3 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2003:331996 CAPLUS  
DOCUMENT NUMBER: 138:339064  
TITLE: Manufacture of iron catalyst for  
hydrogenation of nitriles  
INVENTOR(S): Ansmann, Andreas; Benisch, Christoph; Bassler, Peter;  
Fischer, Rolf-Hartmuth; Maixner, Stefan; Melder,  
Johann-Peter; Luyken, Hermann  
PATENT ASSIGNEE(S): BASF AG, Germany  
SOURCE: Ger. Offen., 6 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10151559	A1	20030430	DE 2001-10151559	20011023
CA 2463068	AA	20030501	CA 2002-2463068	20021018
WO 2003035250	A1	20030501	WO 2002-EP11669	20021018
WO 2003035250	C1	20030724		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1441851	A1	20040804	EP 2002-779497	20021018
EP 1441851	B1	20050831		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
BR 2002013256	A	20040928	BR 2002-13256	20021018
JP 2005506187	T2	20050303	JP 2003-537805	20021018
AT 303204	E	20050915	AT 2002-779497	20021018
US 2004254059	A1	20041216	US 2004-493419	20040422
PRIORITY APPLN. INFO.:			DE 2001-10151559	A 20011023
			WO 2002-EP11669	W 20021018

ED Entered STN: 01 May 2003

AB A catalyst mass useful for the title purpose comprises (a) Fe or a mixture, containing Fe and a Fe-based compound, whereby the Fe particles have an average middle crystallite size 1-35 nm, measured by X-ray diffraction. For example, melting 900 kg magnetite ore with 75 kg Fe powder at 1550° in the air gave a mass containing Fe 72, Mn 0.17, Al 0.08, Ca 0.03, Mg 0.05, Si 0.12, Ti 0.01% and O balance. The wustite content was 44% based on total weight, and Fe(II)/Fe(III) ratio was 1.76. The mass was comminuted, the fraction containing particles 1.5-3 mm was reduced for 72 h at 450° under H/N stream, then cooled and passivated for 24 h at <65° in N containing 1% O to give a catalyst with average size of Fe crystallites 29.5

nm.

The catalyst (239 g) was packed in a series of tubular reactors, reduced with H for 24 h at 70-340° and 72 at 340°, cooled to 107° and a stream of 75.0 mL/h adiponitrile, 370 mL/h NH3 and 200 mL/h H passed through the reactors at 250 bar to give 100.0% adiponitrile conversion with 0.9% selectivity for 6-aminocapronitrile and 98.9% selectivity for H2N(CH2)6NH2.

IC ICM B01J023-745

ICS B01J023-76; C07B043-04; C07C209-48; C07C211-12; C07C255-58; C07C253-30

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 67

ST **iron catalyst** manuf nitrile hydrogenation;

adiponitrile hydrogenation **iron catalyst** manuf;

hexamethylenediamine manuf iron manganese hydrogenation catalyst manuf

IT Alkali metals, uses

Alkaline earth metals

RL: CAT (Catalyst use); USES (Uses)

(catalyst components; manufacture of **iron catalyst** for hydrogenation of nitriles)

IT Nitriles, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

- (manufacture of **iron catalyst** for hydrogenation of)
- IT Hydrogenation catalysts  
(manufacture of **iron catalyst** for hydrogenation of nitriles)
- IT Amines, preparation  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(manufacture of **iron catalyst** for hydrogenation of nitriles)
- IT 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7440-70-2, Calcium, uses 17125-56-3, Wustite, FeO  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst component; manufacture of **iron catalyst** for hydrogenation of nitriles)
- IT 7429-90-5, Aluminum, uses 7440-21-3, Silicon, uses 7440-32-6, Titanium, uses 7440-62-2, Vanadium, uses 7440-67-7, Zirconium, uses  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst promoter; manufacture of **iron catalyst** for hydrogenation of nitriles)
- IT 1309-38-2, Magnetite, uses 7439-89-6, Iron, uses  
RL: CAT (Catalyst use); USES (Uses)  
(manufacture of **iron catalyst** for hydrogenation of nitriles)
- IT 124-09-4P, Hexamethylenediamine, preparation 2432-74-8P, 6-Aminocapronitrile  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(manufacture of **iron catalyst** for hydrogenation of nitriles)
- IT 111-69-3, Adiponitrile  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(manufacture of **iron catalyst** for hydrogenation of nitriles)

L118 ANSWER 4 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:849692 CAPLUS

DOCUMENT NUMBER: 137:353506

TITLE: Chromium support-agglomerate-transition metal polymerization catalysts and processes utilizing same  
INVENTOR(S): Shih, Keng-Yu; Denton, Dean Alexander; Glemza, Rimantas

PATENT ASSIGNEE(S): W.R. Grace & Co.-Conn., USA

SOURCE: PCT Int. Appl., 113 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002088199	A1	20021107	WO 2002-US11370	20020410
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

US 2003204032 A1 20031030 US 2002-120310 20020410  
US 6958375 B2 20051025  
EP 1401890 A1 20040331 EP 2002-766758 20020410

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.: US 2001-287617P P 20010430  
WO 2002-US11370 W 20020410

OTHER SOURCE(S): MARPAT 137:353506

ED Entered STN: 08 Nov 2002

AB The present invention is directed to a one-step method for forming a supported catalyst complex of high activity by substantially simultaneously contacting a bidentate or tridentate ligand forming compound, a transition metal compound and a chromium immobilized Lewis acid support-agglomerate. A typical catalyst was manufactured by mixing Na silicate with H<sub>2</sub>SO<sub>4</sub> 8 min, washing the resulting gel with 2% NH<sub>3</sub> solution 18-36 h at 65.5°, washing the base-washed gel with water at 82°, milling the washed gel as a 20% aqueous slurry until the colloidal content was 20-25%, mixing the resulting wet-milled material with a 20% aqueous slurry of dry-milled, base-water-washed gel prepared by flash or spray drying the base-water-washed gel to moisture content <10% and milling to average particle size 5 µm in a 25:75 wet-milled material-dry-milled material ratio, combining the resulting slurry with a montmorillonite (I) slurry at silica-I ratio 80:20, mixing the resulting slurry with 1% aqueous Cr(OAc)<sub>3</sub> solution, spray drying, activating by heating with air in fluidized bed at 400°/h to 540°, contacting 3 g activated support with 80 mg each bis(2,6-diisopropylaniline-1,8-naphthylene) and NiBr<sub>2</sub>(1,2-dimethoxyethane).

IC ICM C08F010-02

ICS C08F004-02; C08F004-70

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 67

IT Alkali metal compounds

Alkaline earth compounds

Group IIIA element compounds

RL: CAT (Catalyst use); USES (Uses)

(organic, cocatalysts; highly active heterogeneous chromium catalysts having metal oxide-ion-containing layered material supports and transition metal compds. for manufacture of polyolefins)

IT 7439-88-5D, Iridium, compds. 7439-89-6D, Iron, compds.

7439-96-5D, Manganese, compds. 7440-04-2D, Osmium, compds.

7440-05-3D, Palladium, compds. 7440-06-4D, Platinum, compds.

7440-16-6D, Rhodium, compds. 7440-18-8D, Ruthenium, compds.

7440-32-6D, Titanium, compds. 7440-47-3D, Chromium, compds.

7440-48-4D, Cobalt, compds. 7440-58-6D, Hafnium, compds.

7440-62-2D, Vanadium, compds. 7440-67-7D, Zirconium, compds.

RL: CAT (Catalyst use); USES (Uses)

(transition metal compds.; highly active heterogeneous chromium catalysts having metal oxide-ion-containing layered material supports and transition metal compds. for manufacture of polyolefins)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L118 ANSWER 5 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:371561 CAPLUS

DOCUMENT NUMBER: 134:353670

TITLE: Acrylonitrile compositions containing acrylic acid as impurity, and manufacture of acrylonitrile copolymers and acrylamide from them

INVENTOR(S): Ushikubo, Takashi; Hotta, Osamu

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001139536	A2	20010522	JP 1999-319771	19991110
PRIORITY APPLN. INFO.:			JP 1999-319771	19991110

ED Entered STN: 23 May 2001

AB Title compns. contain  $\leq 20$  ppm acrylic acid and are manufactured by gas-phase oxidation of propane with  $\text{NH}_3$ . Thus, a gaseous mixture of O,  $\text{NH}_3$ , and propane was passed through  $\text{MoV}_{0.3}\text{Te}_{0.16}\text{Nb}_{0.12}$  oxide/ $\text{SiO}_2$ -packed reactor at  $460^\circ$  and the crude acrylonitrile was treated with diluted  $\text{H}_2\text{SO}_4$  to give acrylonitrile containing 1 ppm acrylic acid.

IC ICM C07C253-24

ICS B01J027-057; C07C255-08; C08F220-44; C08F279-04; C07B061-00

CC 35-2 (Chemistry of Synthetic High Polymers)

IT Alkali metal compounds

Alkaline earth compounds

Rare earth compounds

RL: CAT (Catalyst use); USES (Uses)

(mixed metal oxides, catalysts; preparation of acrylonitrile compns. containing

acrylic acid as impurity for preparation of polyacrylonitriles and acrylamide)

IT 7429-90-5D, Aluminum, mixed metal oxides, uses 7439-89-6D, Iron, mixed metal oxides, uses 7439-96-5D, Manganese, mixed metal oxides, uses 7440-02-0D, Nickel, mixed metal oxides, uses 7440-05-3D, Palladium, mixed metal oxides, uses 7440-06-4D, Platinum, mixed metal oxides, uses 7440-16-6D, Rhodium, mixed metal oxides, uses 7440-18-8D, Ruthenium, mixed metal oxides, uses 7440-25-7D, Tantalum, mixed metal oxides, uses 7440-32-6D, Titanium, mixed metal oxides, uses 7440-33-7D, Tungsten, mixed metal oxides, uses 7440-36-0D, Antimony, mixed metal oxides, uses 7440-42-8D, Boron, mixed metal oxides, uses 7440-47-3D, Chromium, mixed metal oxides, uses 7440-48-4D, Cobalt, mixed metal oxides, uses 7440-56-4D, Germanium, mixed metal oxides, uses 7440-67-7D, Zirconium, mixed metal oxides, uses 7440-69-9D, Bismuth, mixed metal oxides, uses 7440-74-6D, Indium, mixed metal oxides, uses 7723-14-0D, Phosphorus, mixed metal oxides, uses

RL: CAT (Catalyst use); USES (Uses)

(catalyst; preparation of acrylonitrile compns. containing acrylic acid as impurity for preparation of polyacrylonitriles and acrylamide)

L118 ANSWER 6 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:65493 CAPLUS

DOCUMENT NUMBER: 132:78983

TITLE: Hydrogenation process and catalysts for the simultaneous production of 6-aminocapronitrile and hexamethylenediamine from adiponitrile

INVENTOR(S): Luyken, Hermann; Ohlbach, Frank; Ansmann, Andreas; Bassler, Peter; Fischer, Rolf; Melder, Johann-Peter; Merger, Martin; Rehfinger, Alwin; Voit, Guido; Achhammer, Guenther

PATENT ASSIGNEE(S): BASF A.-G., Germany

SOURCE: Ger. Offen., 8 pp.

DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

CODEN: GWXXBX

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19832529	A1	20000127	DE 1998-19832529	19980720
CA 2337858	AA	20000203	CA 1999-2337858	19990702
WO 2000005191	A1	20000203	WO 1999-EP4583	19990702
W: AL, AU, BG, BR, BY, CA, CN, CZ, GE, HR, HU, ID, IL, IN, JP, KR, KZ, LT, LV, MK, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9950298	A1	20000214	AU 1999-50298	19990702
BR 9912284	A	20010417	BR 1999-12284	19990702
EP 1098869	A1	20010516	EP 1999-934555	19990702
EP 1098869	B1	20031001		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2002521356	T2	20020716	JP 2000-561148	19990702
AT 251112	E	20031015	AT 1999-934555	19990702
ES 2211125	T3	20040701	ES 1999-934555	19990702
TW 467882	B	20011211	TW 1999-88112315	19990720
US 6346641	B1	20020212	US 2001-720882	20010102

## PRIORITY APPLN. INFO.:

DE 1998-19832529	A	19980720
DE 1998-19832590	A	19980720
WO 1999-EP4583	W	19990702

ED Entered STN: 27 Jan 2000

AB 6-Aminocapronitrile and hexamethylenediamine are simultaneously prepared by:  
 (A) the hydrogenation of adiponitrile (I) in the presence of a transition metal-containing catalyst to produce a mixture of 6-aminocapronitrile (II), hexamethylenediamine, and high-boiling components; (B) separating the hexamethylenediamine from the step A mixture by distillation; (C)

distillatively

separating out the 6-aminocapronitrile; (D) distillatively separating out the adiponitrile; and (E) simultaneously distillatively separating out the I and II from the obtained fractions from step C. Steps D and E are conducted at bottom temps. under 185°; process flow diagrams are presented.

IC ICM C07C255-24

ICS C07C253-30; C07C253-34; C07C211-12; C07C209-48; C07C209-82

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 23, 48, 67

IT Alkali metal compounds

Alkaline earth compounds

Rare earth metals, uses

Transition metals, uses

RL: CAT (Catalyst use); USES (Uses)

(hydrogenation catalysts for the simultaneous production of 6-aminocapronitrile and hexamethylenediamine from adiponitrile)

IT 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses

7439-89-6, Iron, uses 7439-92-1, Lead, uses 7439-96-5,

Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses

7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4,

Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses

7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-22-4,

Silver, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses

7440-33-7, Wolfram, uses 7440-36-0, Antimony, uses 7440-38-2, Arsenic,

uses 7440-43-9, Cadmium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7723-14-0, Phosphorus, uses

RL: CAT (Catalyst use); USES (Uses)

(hydrogenation process and catalysts for the simultaneous production of 6-aminocapronitrile and hexamethylenediamine from adiponitrile)

L118 ANSWER 7 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:576903 CAPLUS

DOCUMENT NUMBER: 131:185371

TITLE: Iron-based catalysts for hydrogenating  $\alpha,\omega$ -dinitriles to into their corresponding diamines or aminonitriles

INVENTOR(S): Voit, Guido; Fischer, Rolf; Bassler, Peter; Ansmann, Andreas; Luyken, Hermann; Merger, Martin; Ohlbach, Frank; Rehfinger, Alwin

PATENT ASSIGNEE(S): Basf A.-G., Germany

SOURCE: PCT Int. Appl., 20 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9944984	A1	19990910	WO 1999-EP1150	19990223
W: AL, AU, BG, BR, BY, CA, CN, CZ, GE, HU, ID, IL, IN, JP, KR, KZ, LT, LV, MK, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, AM, AZ, KG, MD, TJ, TM				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19809687	A1	19990909	DE 1998-19809687	19980306
CA 2322185	AA	19990910	CA 1999-2322185	19990223
AU 9928356	A1	19990920	AU 1999-28356	19990223
TR 200002588	T2	20001121	TR 2000-200002588	19990223
BR 9908505	A	20001205	BR 1999-8505	19990223
EP 1071653	A1	20010131	EP 1999-908940	19990223
EP 1071653	B1	20030820		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, SI, LT, LV, FI, RO				
JP 2002505192	T2	20020219	JP 2000-534529	19990223
AT 247623	E	20030915	AT 1999-908940	19990223
PT 1071653	T	20031231	PT 1999-908940	19990223
ES 2207184	T3	20040516	ES 1999-908940	19990223
TW 518252	B	20030121	TW 1999-88103356	19990305
US 6297394	B1	20011002	US 2000-622773	20000823
NO 2000004424	A	20000905	NO 2000-4424	20000905
NO 317588	B1	20041115		
BG 104773	A	20010430	BG 2000-104773	20000918
US 2001025119	A1	20010927	US 2001-851214	20010508
US 6852669	B2	20050208		
US 2004181095	A1	20040916	US 2004-776544	20040212
PRIORITY APPLN. INFO.:			DE 1998-19809687	A 19980306
			WO 1999-EP1150	W 19990223
			US 2000-622773	A3 20000823
			US 2001-851214	A3 20010508

ED Entered STN: 14 Sep 1999



AB Catalysts for hydrogenating  $\alpha,\omega$ -dinitriles (e.g., adipodinitrile) to into their corresponding diamines (e.g., hexamethylenediamine) or aminonitriles with reduced byproduct formation are presented which contain: (A) iron, an iron compound, or mixts. thereof; (B) 0.001-0.3% in relation to (A) of a promoter based on 2-5 of aluminum, silicon, zirconium, titanium, and vanadium; (C) 0-0.3% in relation to (A) of an alkali or alk.earth metal compound; and (D) 0.001-1% in relation to (A) of manganese.

IC ICM C07C209-48  
ICS B01J023-78; B01J023-889

CC 35-2 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 23, 67

IT 1309-38-2D, Magnetite, reduced and optionally pacified compds.  
7429-90-5, Aluminum, uses 7439-89-6, Iron, uses  
7439-89-6D, Iron, compds., uses 7439-95-4D, Magnesium, compds.,  
uses 7440-21-3, Silicon, uses 7440-32-6, Titanium,  
uses 7440-62-2, Vanadium, uses 7440-67-7, Zirconium,  
uses 7440-70-2D, Calcium, compds., uses  
RL: CAT (Catalyst use); USES (Uses)  
(iron-based catalysts for hydrogenating  $\alpha,\omega$ -dinitriles to  
into their corresponding diamines or aminonitriles)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L118 ANSWER 8 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:420598 CAPLUS

DOCUMENT NUMBER: 122:221562

TITLE: Catalytic mineral metal alloy containing feldspar for  
emission control devices

INVENTOR(S): Taylor, Jack H., Jr.

PATENT ASSIGNEE(S): USA

SOURCE: U.S., 10 pp. Cont.-in-part of U.S. 5,288,674.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5387565	A	19950207	US 1994-197979	19940217
US 5288674	A	19940222	US 1991-783877	19911029
US 5505745	A	19960409	US 1995-384133	19950206
US 5626689	A	19970506	US 1995-536198	19950929
US 5667751	A	19970916	US 1996-682178	19960717
PRIORITY APPLN. INFO.:			US 1991-783877	A2 19911029
			US 1994-197979	A2 19940217
			US 1995-384133	A3 19950206
			US 1995-536198	A1 19950929

ED Entered STN: 17 Mar 1995

AB The emission control device contains a catalytic mineral metal alloy (predominantly containing a plagioclase feldspar belonging to the albite-anorthite series and containing small amts. of mica, kaolinite and serpentine, and optionally magnetite) capable of reducing pollutants in the combustion gases generated from an internal combustion engine, as well as from other combusted solid and liquid fossil fuels such as coal, and is also useful for treating combustion gases generated from the incineration of landfill garbage and tire rubber, among others. The catalytic material of the present invention is highly resistant to deactivation or poisoning from contaminants in the combusted material such as leaded gasoline.

IC ICM B01J021-16  
ICS B01J023-00  
INCL 502063000  
CC 59-3 (Air Pollution and Industrial Hygiene)  
Section cross-reference(s): 60, 67  
IT 1302-54-1D, Anorthite, metal alloys 1309-38-2D, Magnetite,  
feldspar alloys 1318-74-7D, Kaolinite, metal alloys 7429-90-5D  
, Aluminum, feldspar alloys 7439-89-6D, Iron, feldspar alloys  
7439-95-4D, Magnesium, feldspar alloys 7440-32-6D, Titanium,  
feldspar alloys 7440-50-8D, Copper, feldspar alloys 11097-15-7D, Cast  
iron, feldspar alloys 12244-10-9D, Albite, metal alloys 12597-68-1D,  
Stainless steel, feldspar alloys 12597-69-2D, Steel, feldspar alloys,  
uses 12597-71-6D, Brass, feldspar alloys 18786-24-8D, Serpentine,  
metal alloys  
RL: CAT (Catalyst use); USES (Uses)  
(catalytic mineral metal alloy containing feldspar for emission control  
devices)

L118 ANSWER 9 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1995:996931 CAPLUS  
DOCUMENT NUMBER: 124:14547  
TITLE: Catalytic removal of nitrogen oxides from waste and  
combustion gases  
PATENT ASSIGNEE(S): FTU GmbH Forschung und Technische Entwicklung im  
Umweltschutz, Germany  
SOURCE: Ger. Offen., 5 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4413359	A1	19951019	DE 1994-4413359	19940418
DE 4443301	A1	19960613	DE 1994-4443301	19941206
PRIORITY APPLN. INFO.:			DE 1994-4413359	A 19940418

ED Entered STN: 22 Dec 1995  
AB Nitrogen oxides are removed from gases using a reducing agent such as  
ammonia and/or urea and a reduction catalyst comprising a hydrophobic,  
dealuminated Y-type zeolite loaded with Cu, CuO, and/or Cu salts. The  
catalyst may also contain V, Ti, W, Mo, Mn, Fe, Pt group elements, rare  
earth metals, and/or alkali or alkaline earth compds.  
IC ICM B01D053-86  
ICS B01J029-14  
ICA B01J029-16; B01J029-12  
CC 59-4 (Air Pollution and Industrial Hygiene)  
Section cross-reference(s): 67  
IT Alkali metal compounds  
Alkaline earth compounds  
Platinum-group metals  
Rare earth metals, uses  
RL: CAT (Catalyst use); USES (Uses)  
(catalytic removal of nitrogen oxides from waste and combustion gases)  
IT 1317-38-0, Cupric oxide, uses 7439-89-6, Iron, uses  
7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses  
7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-50-8,  
Copper, uses 7440-50-8D, Copper, salts 7440-62-2, Vanadium,  
uses  
RL: CAT (Catalyst use); USES (Uses)

(catalytic removal of nitrogen oxides from waste and combustion gases)

L118 ANSWER 10 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:578633 CAPLUS

DOCUMENT NUMBER: 107:178633

TITLE: Catalysts for the vapor-phase intramolecular cyclodehydration reaction of alkanolamines

INVENTOR(S): Shimasaki, Yuuji; Ueshima, Michio; Tuneki, Hideaki; Ariyoshi, Kimio

PATENT ASSIGNEE(S): Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 42 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 230776	A2	19870805	EP 1986-310074	19861223
EP 230776	A3	19880107		
EP 230776	B1	19910306		
R: BE, CH, DE, FR, GB, LI, NL, SE				
JP 62152543	A2	19870707	JP 1985-292541	19851227
JP 05016905	B4	19930305		
JP 63126553	A2	19880530	JP 1986-271965	19861117
JP 05076345	B4	19931022		
JP 63126554	A2	19880530	JP 1986-271966	19861117
JP 05076346	B4	19931022		
JP 63126555	A2	19880530	JP 1986-271967	19861117
JP 05076347	B4	19931022		
JP 63126556	A2	19880530	JP 1986-271968	19861117
JP 63126557	A2	19880530	JP 1986-271969	19861117
JP 63126558	A2	19880530	JP 1986-271970	19861117
AU 8666888	A1	19870702	AU 1986-66888	19861223
CA 1276615	A1	19901120	CA 1986-526170	19861223
CN 86108970	A	19870805	CN 1986-108970	19861227
CN 1013646	B	19910828		
US 4833248	A	19890523	US 1988-163094	19880302
PRIORITY APPLN. INFO.:				
			JP 1985-292541	A 19851227
			JP 1986-271965	A 19861117
			JP 1986-271966	A 19861117
			JP 1986-271967	A 19861117
			JP 1986-271968	A 19861117
			JP 1986-271969	A 19861117
			JP 1986-271970	A 19861117
			JP 1986-266585	A 19861111
			JP 1986-266586	A 19861111
			JP 1986-266587	A 19861111
			US 1986-943085	A3 19861218

OTHER SOURCE(S): CASREACT 107:178633

ED Entered STN: 14 Nov 1987

GI For diagram(s), see printed CA Issue.

AB The title catalysts,  $XaPbYcOd$  ( $X$  = Group IIIA element, Group IVA element, Group VA element, transition metal elements, lanthanides, actinides;  $Y$  = alkali metals, alkaline earth metals; such that when  $a = 1$ ,  $b = 0.01-6$  and  $c = 0-3$ ;  $d$  = value necessary to satisfy O requirements of the elements) are useful in the manufacture of I ( $R, R1 = H, Me, Et$ ;  $n = 2-5$ ) by the intramol. cyclodehydration of  $HO[C(R)R1]nNH_2$  (values above), and their derivs. are useful for intermediates for medicines, agricultural chemical, textile

finishing agents, and antistatic agents (no data). Thus, 40.4 g SnO was suspended in 100 mL H<sub>2</sub>O, 34.6 g of 85% H<sub>3</sub>PO<sub>4</sub> was added, the mixture stirred, heated, evaporated to dryness, dried at 120° for 12 h in air, pulverized to 9-5 mesh, and calcined at 600° for 2 h forming the title catalyst, 20 mL of which was charged into a reactor heated at 420° and a 5:95 HOCH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>-N volume ratio mixture passed over the catalyst at space velocity 1500 h<sup>-1</sup> producing, after 50 h, 60.0% HOCH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub> conversion and I (R = R<sub>1</sub> = H, n = 2) 1-pass yield 38.2%, and I selectivity 63.6%.

- IC ICM B01J027-18  
ICS C07D203-02; C07D295-02
- CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
Section cross-reference(s): 5, 27, 40, 63, 67
- IT **Alkaline earth compounds**  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for intramol. cyclocondensation of alkanolamines)
- IT 7440-32-6, Titanium, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, containing copper and oxygen and phosphorus, for intramol. cyclocondensation of alkanolamines)
- IT 7439-96-5, Manganese, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, containing iron and oxygen and phosphorus, for intramol. cyclocondensation of alkanolamines)
- IT 7439-89-6, Iron, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, containing manganese and oxygen and phosphorus, for intramol. cyclocondensation of alkanolamines)
- IT 7429-90-5, Aluminum, uses and miscellaneous 7440-21-3, Silicon, uses and miscellaneous 7440-28-0, Thallium, uses and miscellaneous 7440-36-0, Antimony, uses and miscellaneous 7440-69-9, Bismuth, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, containing oxygen and phosphorus, for alkanolamine intramol. cyclocondensation reaction)
- IT 7439-91-0, Lanthanum, uses and miscellaneous 7440-03-1, Niobium, uses and miscellaneous 7440-29-1, Thorium, uses and miscellaneous 7440-45-1, Cerium, uses and miscellaneous 7440-65-5, Yttrium, uses and miscellaneous 7440-66-6, Zinc, uses and miscellaneous 7440-67-7, Zirconium, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, containing oxygen and phosphorus, for intramol. cyclocondensation of alkanolamines)

L118 ANSWER 11 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1983:578189 CAPLUS  
DOCUMENT NUMBER: 99:178189  
TITLE: Treatment of gases  
INVENTOR(S): Nishino, Hiroshi; Aibe, Toshio; Noguchi, Katsuya  
PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Japan  
SOURCE: Ger. Offen., 47 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3303039	A1	19830804	DE 1983-3303039	19830129

DE 3303039	C2	19960328		
JP 58132085	A2	19830806	JP 1982-15422	19820201
JP 04009572	B4	19920220		
JP 58153519	A2	19830912	JP 1982-37500	19820309
JP 04009573	B4	19920220		
JP 58153520	A2	19830912	JP 1982-37501	19820309
JP 04009574	B4	19920220		
US 4556547	A	19851203	US 1983-460045	19830121
GB 2114911	A1	19830901	GB 1983-2308	19830127
GB 2114911	B2	19850509		
FR 2520635	A1	19830805	FR 1983-1439	19830131
FR 2520635	B1	19901019		

## PRIORITY APPLN. INFO.:

JP 1982-15422	A	19820201
JP 1982-37500	A	19820309
JP 1982-37501	A	19820309

ED Entered STN: 12 May 1984

AB H2S and/or COS are removed from gases containing  $\leq 2$  volume% O2 by active C containing (1) a Cu compound and (2) an alkali metal compound and/or alkaline earthmetal compound at  $\leq 150^\circ$ . Thus, active C 16-24 mesh with a surface area of 1040 m2/g was saturated with a solution containing Cu(NO3)2 and KNO3.The 50 mL product was packed into a quartz-glass column and calcined 30. min in flowing N2 at  $350^\circ$ . The resulting adsorbent contained 2.0 mmol Cu and 1.0 mmol K. Then, a gas containing N2 97.5, H2O 2.5 weight%, and

COS

12.5 ppm was passed at 40 cm/s through the catalyst (15 mL) in a glass column 1.6 cm diameter at  $40^\circ$ . The COS removal after 25, 50, 75, and 100 h was 100, 100, 99, and 90%, resp.

IC B01D053-14; C10K001-32

CC 48-1 (Unit Operations and Processes)

IT Alkali metals, compounds

## Alkaline earth compounds

RL: CAT (Catalyst use); USES (Uses)

(catalysts, with activated carbon for removal of hydrogen sulfide and carbonyl sulfide from gases)

IT 7429-90-5D, compds. 7439-89-6D, compds. 7439-92-1D, compds. 7439-96-5D, compds. 7440-02-0D, compds. 7440-32-6D, compds. 7440-43-9D, compds. 7440-47-3D, compds. 7440-48-4D, compds. 7440-50-8D, compds. 7440-62-2D, compds. 7440-66-6D, compds.

RL: CAT (Catalyst use); USES (Uses)

(catalysts, with activated carbon for removal of hydrogen sulfide and carbonyl sulfide from gases)

L118 ANSWER 12 OF 55 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1978:446092 CAPLUS

DOCUMENT NUMBER: 89:46092

TITLE: Hydrocarbons by reacting carbon monoxide with hydrogen using a catalyst

INVENTOR(S): Bijwaard, Henricus Michael Joseph; Sie, Swan Tiong

PATENT ASSIGNEE(S): Shell Internationale Research Maatschappij B. V., Neth.

SOURCE: Ger. Offen., 32 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2750007	A1	19780518	DE 1977-2750007	19771108
DE 2750007	C2	19870827		
NL 7612460	A	19780512	NL 1976-12460	19761110
CA 1089495	A1	19801111	CA 1977-287397	19770923
AU 7729708	A1	19790426	AU 1977-29708	19771014
AU 513157	B2	19801120		
IN 147159	A	19791201	IN 1977-DE323	19771018
BE 860395	A2	19780503	BE 1977-8495	19771103
JP 53059604	A2	19780529	JP 1977-133148	19771108
JP 63037090	B4	19880722		
FR 2370712	A1	19780609	FR 1977-33600	19771108
FR 2370712	B1	19801010		
ZA 7706649	A	19780830	ZA 1977-6649	19771108
GB 1548468	A	19790718	GB 1977-46427	19771108
			NL 1976-12460	A 19761110

PRIORITY APPLN. INFO.:

ED Entered STN: 12 May 1984

AB Catalysts with improved selectivity for the title process, having average pore diameter (p)  $\leq 10,000$  nm, average particle diameter (d)  $\leq 5$  mm, and  $p/d > 2.0 + 10^{-6}$ , are prepared by impregnating 100 parts support with 10-75 parts Fe group metal and 1-50% promoter, drying, and calcining. Thus, passing 1:1 CO-H over a catalyst containing Fe 25, Cu 1.25, K 1, and SiO<sub>2</sub> parts (p 20 nm, d 2.2 mm) at 250°/30 bar and space velocity 1000 volume/h gives 75 g hydrocarbon/g catalyst-h and selectivity (% of hydrocarbons containing  $> 2$  C) 78, compared with 75 and 69, resp., for a similar catalyst with p 2.4 nm and d 2.2 mm.

IC C07C001-04

CC 51-5 (Fossil Fuels, Derivatives, and Related Products)  
Section cross-reference(s): 23, 67

ST Fischer Tropsch catalyst; **iron catalyst** Fischer Tropsch; copper catalyst Fischer Tropsch; potassium catalyst Fischer Tropsch; carbon monoxide hydrogenation catalyst

IT Hydrogenation catalysts  
(Fischer-Tropsch, iron-cobalt-**promoter**)

IT 7429-90-5, uses and miscellaneous 7439-95-4, uses and miscellaneous 7440-09-7, uses and miscellaneous 7440-29-1, uses and miscellaneous 7440-47-3, uses and miscellaneous 7440-50-8, uses and miscellaneous 7440-66-6, uses and miscellaneous 7440-67-7, uses and miscellaneous  
RL: **CAT (Catalyst use)**; USES (Uses)  
(catalysts, containing iron or cobalt, for hydrogenation of carbon monoxide to hydrocarbons)

IT 7439-89-6, uses and miscellaneous 7440-48-4, uses and miscellaneous  
RL: **CAT (Catalyst use)**; USES (Uses)  
(catalysts, containing **promoters**, for hydrogenation of carbon monoxide to hydrocarbons)

L118 ANSWER 13 OF 55 JICST-EPlus COPYRIGHT 2005 JST on STN

ACCESSION NUMBER: 860373055 JICST-EPlus

TITLE: Synthesis of light olefins from synthesis gas utilizing zeolite.

AUTHOR: SANO TSUNEJI; TAKAYA HARUO

CORPORATE SOURCE: Agency of Industrial Science and Technology, National Chemical Lab. for Industry

SOURCE: Sekiyu Gakkaishi (Journal of the Japan Petroleum Institute), (1986) vol. 29, no. 4, pp. 267-279. Journal

Code: F0042A (Fig. 19, Tbl. 7, Ref. 25)  
CODEN: SKGSAE; ISSN: 0582-4664

PUB. COUNTRY: Japan  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: Japanese  
STATUS: New

## ABSTRACT:

Selective synthesis of light olefins (ethylene, propylene) from synthesis gas was studied utilizing various zeolite-based catalysts. (1) New metal/zeolite catalyst: The catalyst was synthesized hydrothermally from zeolite and Fe(II or III) compounds such as Fe<sub>3</sub>O<sub>4</sub>, Fe<sub>2</sub>O<sub>3</sub>, FeOOH. Figure 1 shows scanning electron micrographs of Fe<sub>3</sub>O<sub>4</sub> and the Fe<sub>3</sub>O<sub>4</sub>/ZSM-5 catalyst. No Fe<sub>3</sub>O<sub>4</sub> particle was observed in the latter. Figure 2(b) shows an X-ray diffraction diagram of this catalyst. The reflections of ZSM-5 and Fe<sub>2</sub>O<sub>3</sub> were observed. Appearance of the diffraction peaks in Fe<sub>2</sub>O<sub>3</sub> are attributed to oxidation of Fe<sub>3</sub>O<sub>4</sub> in this catalyst by calcination in air. Figure 3 illustrates X-ray photoelectron spectra of the catalyst before and after grinding. The catalyst before grinding had very weak peaks of iron. By grinding the catalyst, these peaks became very strong, while the silicon peaks did not substantially change. From these results, it is concluded that the Fe<sub>3</sub>O<sub>4</sub>/ZSM-5 catalyst thus obtained has a unique texture in which Fe<sub>3</sub>O<sub>4</sub> particles are enveloped with ZSM-5 zeolite. The results of conversion of synthesis gas over various metal/zeolite catalysts are given in Table 1. (2) Zeolite-based **iron catalyst**: The **\*\*\*catalyst\*\*\*** was prepared using FeSO<sub>4</sub> and Fe(NO<sub>3</sub>)<sub>3</sub> as a source of iron in the same method described above. The synthetic zeolite-based **iron \*\*\*catalyst\*\*\*** had a well defined crystalline ZSM-5 structure. Figure 5 shows the results of conversion of synthesis gas over the catalysts. The catalysts prepared from an Fe(II) compound were more active than those prepared from an Fe(III) compound. The (C<sub>2</sub>H<sub>4</sub>+C<sub>3</sub>H<sub>6</sub>) selectivity of the former was lower than that of the latter. In order to elucidate these differences involving the activity and the selectivity, X-ray diffraction patterns of various catalysts were measured. In the case of the catalysts prepared from the Fe(III) compound, the d(084)-spacing sharply increased with the Fe/Si atomic ratio. (abridged author abst.)

CLASSIFICATION: YD02000V; XE01050T (661.71/.78; 66.097)  
CONTROLLED TERM: synthetic zeolite; synthesis gas; catalyst; research and development; high pressure; fixed bed reactor; flow reactor; temperature; space velocity; iron compound; **titanium** compound; **vanadium** compound; **manganese** compound; selectivity; alkene; aliphatic alcohol  
BROADER TERM: combustible gas; development; pressure; chemical reactor; chemical equipment; equipment; velocity; iron group element compound; transition metal compound; 4A group element compound; 5A group element compound; 7A group element compound; property; olefin compound; aliphatic hydrocarbon; hydrocarbon; unsaturated hydrocarbon; alcohol; hydroxy compound

L118 ANSWER 14 OF 55 JICST-EPlus COPYRIGHT 2005 JST on STN

ACCESSION NUMBER: 860101275 JICST-EPlus  
TITLE: Gasoline synthesis from syngas on composite catalysts of Fe-Mn-Ru mixed oxides and pentasil-type metallosilicates.  
AUTHOR: INUI TOMOYUKI; HAGIWARA TAKASHI; YAMASE OSAMU  
CORPORATE SOURCE: Kyoto Univ., Faculty of Engineering  
SOURCE: Sekiyu Gakkaishi (Journal of the Japan Petroleum Institute), (1986) vol. 29, no. 1, pp. 8-14. Journal Code: F0042A (Fig. 4, Tbl. 4, Ref. 21)

CODEN: SKGSAE; ISSN: 0582-4664  
PUB. COUNTRY: Japan  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: Japanese  
STATUS: New

## ABSTRACT:

Selective synthesis of gasoline from syngas was investigated using composite \*\*\*catalysts\*\*\* of iron-based mixed metal-oxides and a shape-selective aluminosilicate, H-ZSM-5, and a chromosilicate. Addition of Mn component to an Fe/H-ZSM-5 evidently improved the C2-C4 olefin selectivity, although the increase of CO conversion was rather small. Combination of Ru with the Fe-Mn/H-ZSM-5 by two-stage supporting method increased the space-time conversion of CO to hydrocarbons. When the Fe-Mn-Ru components were supported on  $\Gamma$ -alumina instead of H-ZSM-5, C2-C4 olefins increased significantly because the  $\Gamma$ -alumina had little activity for the conversion of lower olefins formed. When after the Fe-Mn-Ru/ $\Gamma$ -alumina, H-ZSM-5 was packed in series, the C2;C4 olefins formed through the first stage catalyst were converted almost thoroughly. However, in addition to the gasoline, C3 and C4 paraffins were also formed by the in-series catalystbeds. Therefore, instead of H-ZSM-5, a chromosilicate having a pentasil pore-opening structure the same as ZSM-5 but having a weaker acidity was used at a higher temperature and a pressure. Consequently, a high gasoline selectivity (ca. 60%) was achieved, as the hydrogenation of C2-C4 olefins to corresponding paraffins had been avoided. (author abst.)

CLASSIFICATION: YF02040T; XE01050T (665.64/.65; 66.097)  
CONTROLLED TERM: synthesis gas; carbon monoxide; chemistry; chemical synthesis; iron compound; **manganese** compound; ruthenium compound; oxide; supported catalyst; alumina; synthetic zeolite; selectivity; solid acid; acid catalytic reaction; percent conversion; chromium compound; **silicon** compound; oxoate; gasoline; polymerization  
BROADER TERM: combustible gas; carbon oxide; chalcogenide; oxygen group element compound; oxygen compound; carbon compound; carbon group element compound; natural science; science; chemical reaction; synthesis; iron group element compound; transition metal compound; 7A group element compound; platinum group element compound; catalyst; **aluminum** oxide; **aluminum** compound; 3B group element compound; metal oxide; property; acid; acid-base catalysis; catalytic reaction; ratio; 6A group element compound; petroleum fraction

L118 ANSWER 15 OF 55 PASCAL COPYRIGHT 2005 INIST-CNRS. ALL RIGHTS RESERVED.  
on STN DUPLICATE 1

ACCESSION NUMBER: 2004-0277663 PASCAL  
COPYRIGHT NOTICE: Copyright .COPYRGT. 2004 INIST-CNRS. All rights reserved.  
TITLE (IN ENGLISH): Incorporation of manganese and iron into the zirconia lattice in promoted sulfated zirconia catalysts  
AUTHOR: JENTOFT Friederike C.; HAHN Alexander; KROEHNERT Jutta; LORENZ Gisela; JENTOFT Rolf E.; RESSLER Thorsten; WILD Ute; SCHLOEGL Robert; HAESSNER Carmen; KOEHLER Klaus  
CORPORATE SOURCE: Department of Inorganic Chemistry, Fritz Haber Institute of the Max Planck Society, Faradayweg 4-6, 14195 Berlin, Germany, Federal Republic of; Anorganisch-chemisches Institut, Technische Universitaet Muenchen, Lichtenbergstrasse 4., 85747 Garching, Germany, Federal Republic of



SOURCE: Journal of catalysis : (Print), (2004), 224(1), 124-137, 80 refs.  
ISSN: 0021-9517 CODEN: JCTLA5

DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: United States  
LANGUAGE: English  
AVAILABILITY: INIST-9623, 354000111923910140  
ABSTRACT: Two series of Mn- or Fe-promoted zirconia samples were prepared: (i) a series of sulfate-free reference compounds via co-precipitation of aqueous solutions containing **zirconium** and the **promoter** cation and (ii) a series of catalysts via incipient wetness impregnation of a sulfated **zirconium** hydroxide. The **promoter** content was varied between 0 and 5 wt% metal. All promoter-containing materials were calcined at 923 K. The reference materials contained mainly isolated Mn or Fe species incorporated into the zirconia lattice as evidenced by stabilization of the tetragonal zirconia phase, EPR (isolated ions in highly symmetric environment), and a shrinking unit cell volume (XRD) of the tetragonal zirconia phase with increasing promoter content. Only the Mn-promoted catalysts showed such shrinkage in unit cell volume with increasing promoter content. At 2 wt% promoter content, Fe could and Mn could not be detected by ion scattering spectroscopy on the surface of the catalysts. The **Fe-promoted catalysts** contained **Fe<sub>2</sub>O<sub>3</sub>**-like surface species (EPR, XANES), which could at least in part be removed by washing with oxalic acid. Catalysts were tested for isomerization at 338 K using 1 kPa n-butane in balance of N<sub>2</sub>. At 0.5 wt% promoter content the maximum rates produced by the 0.5 wt% Mn- and Fe-promoted sulfated zirconia were about 80 and 20  $\mu\text{mol g}^{-1}\text{h}^{-1}$ , respectively. Mn was thus more effective as a promoter for n-butane isomerization than Fe, despite the more extensive incorporation into the zirconia lattice.

CLASSIFICATION CODE: 001C01A03; Chemistry; General chemistry, Physical chemistry; Catalysis

CONTROLLED TERM: Incorporation; Manganese; Iron; Transition element compounds; Zirconia; Catalyst; Solid solution; X ray diffraction; XANES spectrometry; Butane; Isomerization

L118 ANSWER 16 OF 55 PASCAL COPYRIGHT 2005 INIST-CNRS. ALL RIGHTS RESERVED.  
on STN DUPLICATE 2

ACCESSION NUMBER: 2003-0400565 PASCAL  
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TITLE (IN ENGLISH): Non-toxic **Fe-based catalysts** for styrene synthesis: The effect of salt precursors and **aluminum promoter** on the catalytic properties  
Selected Papers from the 11th Brazilian Congress on Catalysis, September 11-14, 2001, Bento Goncalves, RS, Brazil

AUTHOR: CONCEICAO OLIVEIRA Alcineia; FIERRO Jose L. G.; VALENTINI Antoninho; SANTANA NOBRE Paulo Sergio;

RANGEL Maria Do Carmo  
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Amparo a Pesquisa de Rio Grande do Sul (FAPERGS),  
Brazil (patr.); Ministerio de Ciencia e Tecnologia  
(MCT), Brazil (patr.); Fundacao Coordenacao de  
Aperfeicoamento de Pessoal de Nivel Superior (CAPES),  
Brazil (patr.)  
SOURCE: Catalysis today, (2003), 85(1), 49-57, 25 refs.  
Conference: 11 Brazilian Congress on Catalysis, Bento  
Goncalves, RS (Brazil), 11 Sep 2001  
ISSN: 0920-5861 CODEN: CATTEA  
DOCUMENT TYPE: Journal; Conference  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: Netherlands  
LANGUAGE: English  
AVAILABILITY: INIST-21357, 354000112382280060  
ABSTRACT: The catalytic dehydrogenation of ethylbenzene to  
produce styrene is an important industrial process  
because it is used in the manufacture of resins,  
synthetic rubber and plastics. The most used catalysts  
for this process are iron oxides containing potassium  
and chromium oxides. These catalysts show high  
activity and selectivity but deactivate with time  
on-stream in the industrial units, mainly due to the  
loss of potassium. On the other hand, the storage of  
the exhausted catalytic materials causes environmental  
damage because of the toxicity of chromium compounds.  
In order to find non-toxic and potassium-free  
catalysts, the effect of aluminum and the salt  
precursor on the properties of iron oxides was  
investigated in this work. The catalysts showed high  
specific area, were resistant to reduction and were  
potassium-free; these features can prevent their  
deactivation. Also, they showed higher activity and  
selectivity than hematite and were no harmful for the  
environment. In these catalysts aluminum acts both as  
textural and structural promoter. Among the starting  
salt precursors studied (nitrate, sulfate and  
chloride), the iron chloride was the most efficient  
one, producing active and selective catalysts with  
high resistance against deactivation.  
CLASSIFICATION CODE: 001C01A03A; Chemistry; General chemistry, Physical  
chemistry; Catalysis  
CONTROLLED TERM: Catalyst; Styrene; Synthesis; Precursor; Promoter;  
Catalytic reaction; Ethylbenzene; Dehydrogenation;  
Iron Oxides; Aluminium; Potassium; Chromium;  
Heterogeneous catalysis  
BROADER TERM: Benzenic compound; Hydrocarbon; Transition metal  
Compounds

L118 ANSWER 17 OF 55 PASCAL COPYRIGHT 2005 INIST-CNRS. ALL RIGHTS RESERVED.  
on STN DUPLICATE 3

ACCESSION NUMBER: 2001-0068254 PASCAL

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TITLE (IN ENGLISH): An environmental friendly dopant for the high-temperature shift catalysts  
Catalytic technologies for environmentally benign processes

AUTHOR: CARNEIRO DE ARAUJO Genira; RANGEL Maria Do Carmo  
APESTEGUIA Carlos R. (ed.); RESASCO Daniel E. (ed.)

CORPORATE SOURCE: Instituto de Quimica, Universidade Federal de Bahia, Campus Universitario de Ondina, Federacao, 40 290-170 Salvador, Bahia, Brazil  
INCAPE, Universidad Nacional del Litoral, Santa Fe, Argentina; School of Chemical Engineering and Materials Science, University of Oklahoma, Norman, OK 73019-1004, United States

SOURCE: Catalysis today, (2000), 62(2-3), 201-207, 17 refs.  
Conference: Catalytic Technologies for Environmentally Benign Processes. Workshop, Santa Fe (Argentina), 2 Sep 1999  
ISSN: 0920-5861 CODEN: CATTEA

DOCUMENT TYPE: Journal; Conference

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: Netherlands

LANGUAGE: English

AVAILABILITY: INIST-21357, 354000093286010070

ABSTRACT: The high-temperature shift (HTS) reaction is an important step in industrial processes and gas purification. Although the catalyst shows a stable performance, the search for non-toxic systems is much needed, especially due to environmental restrictions related to chromium compounds. In this work, the performance of aluminum-doped catalysts with low amounts of copper was investigated, because of the role of copper on decreasing the surface area of the **catalysts** based on **iron** oxides.  
Samples were prepared by precipitation methods, characterized by several techniques and evaluated under different conditions, in order to find operational conditions more effective in the use of energy. The addition of small amounts of copper to aluminum-doped hematite leads to better catalytic properties. Likely, copper behaves as a structural **promoter** while **aluminum** is a textural one. The catalyst can work at more severe conditions than the industrial condition, that is, lower steam to gas molar ratio (S/G = 0.4) and at a lower temperature (350°C). In addition, it can be easily handled and discarded without any damage to the environment or human beings.

CLASSIFICATION CODE: 001C01A03B; Chemistry; General chemistry, Physical chemistry; Catalysis

CONTROLLED TERM: Experimental study; Iron oxide; Modified catalyst; Aluminium; Copper; Catalytic reaction; Water gas; Catalyst activity; Surface area; Heterogeneous catalysis; Environmental protection

BROADER TERM: Transition metal Compounds

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on STN DUPLICATE 4

ACCESSION NUMBER: 1996-0193281 PASCAL  
TITLE (IN ENGLISH): Preparation, characterization and catalytic testing of cobalt oxide and **manganese** oxide catalysts supported on zirconia  
AUTHOR: BOOT L. A.; KERKHOFFS M. H. J. V.; VAN DER LINDEN B. T.; VAN DILLEN A. J.; GEUS J. W.; VAN BUREN F. R.  
CORPORATE SOURCE: Department of Inorganic Chemistry, Debye Institute, Utrecht University, P.O. Box 80083, 3508 TB Utrecht, Netherlands; Dow Benelux N.V., P.O. Box 48, 4530 AA Terneuzen, Netherlands  
SOURCE: Applied catalysis. A, General, (1996), 137(1), 69-86  
ISSN: 0926-860X  
DOCUMENT TYPE: Journal  
BIBLIOGRAPHIC LEVEL: Analytic  
COUNTRY: Netherlands  
LANGUAGE: English  
SUMMARY LANGUAGE: English  
AVAILABILITY: INIST-18840A  
ABSTRACT: Copyright (c) 1996 Elsevier Science B.V. All rights reserved. Zirconia-supported dehydrogenation catalysts based on **manganese** oxide and cobalt oxide were investigated. Preparation of zirconia-supported Mn(-K) and Co(-K) catalysts was carried out by (co-) impregnation of zirconia pellets to incipient wetness. Characterization of the fresh catalysts was performed using nitrogen adsorption, electron microscopy (TEM), X-ray diffraction (XRD), temperature-programmed reduction (TPR), and X-ray photoelectron spectroscopy (XPS). The dehydrogenation of 1-butene was used as a catalytic test reaction. It was shown that catalysts containing finely divided cobalt oxide or **manganese** oxide homogeneously distributed over zirconia supports can be prepared using a pre-shaped zirconia support. From the results obtained with various characterization techniques it was concluded that preparation using complex organic precursors results in the best dispersion of the active phase. The metal-EDTA complex seems the most suitable for producing the desired catalyst systems. Catalysts without **potassium** carbonate deactivate due to carbon deposition. The deactivation behaviour of supported cobalt oxide is similar to that of supported iron oxide, while supported **manganese** oxide shows a more gradual deactivation. The Mn- or Co-based catalysts containing **potassium** carbonate did not show deactivation up to at least 10 h on stream. The activity and selectivity are different, however. The activity ranking was found to be Fe,K > Mn,K > Co,K. The selectivity of the **manganese** oxide-based system was found to be higher than in the iron oxide-based catalyst.  
CLASSIFICATION CODE: 001C01A03A; Chemistry; General chemistry, Physical chemistry; Catalysis  
CONTROLLED TERM: Experimental study; Supported catalyst; Cobalt Oxides; **Manganese** Oxides; Zirconia; **Zirconium** Oxides; Catalytic reaction; Dehydrogenation; Preparation; Impregnation; Metal complex;

Characterization; Catalyst activity; Catalyst selectivity; Heterogeneous catalysis; Stability  
Transition metal Compounds

BROADER TERM:

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on STN

ACCESSION NUMBER: 2002-0213715 PASCAL

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TITLE (IN ENGLISH): Supported transition-metal oxide catalysts for catalytic reduction of SO<sub>2</sub> with CO as a reducing agent

AUTHOR: WANG Ching-Huei; LIN Shiow-Shyung; HWANG Wei-Uie; WENG Hung-Shan

CORPORATE SOURCE: Department of Chemical Engineering, Kao Yuan Institute of Technology, Kaohsiung 821, Taiwan, Province of China; Department of Environmental Engineering and Health, Chia-Nan University of Pharmacy and Science, Tainan 717, Taiwan, Province of China; Department of Chemical Engineering, National Cheng Kung University, Tainan 701, Taiwan, Province of China

SOURCE: Industrial & engineering chemistry research, (2002), 41(4), 666-671, 12 refs.  
ISSN: 0888-5885 CODEN: IECRED

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-120F, 354000102573440030

ABSTRACT: Performances of supported transition-metal oxide catalysts in the catalytic reduction of SO<sub>2</sub> with CO as a reducing agent were investigated. According to the study, Fe<sub>2</sub>O<sub>3</sub>/γ-Al<sub>2</sub>O<sub>3</sub> was found to be the most active catalyst among eight γ-Al<sub>2</sub>O<sub>3</sub>-supported catalysts tested. With Fe<sub>2</sub>O<sub>3</sub> as the active species, CeO<sub>2</sub> is the most suitable support. Using Fe<sub>2</sub>O<sub>3</sub>/CeO<sub>2</sub>, the best catalyst, the optimal feed ratio of CO/SO<sub>2</sub> is 3:1 and provides the highest yield of elemental sulfur and a higher conversion of SO<sub>2</sub>. The catalyst presulfided by CO+SO<sub>2</sub> exhibits a higher performance than those pretreated with CO, H<sub>2</sub>, or He. The desorption patterns of CO temperature-programmed desorption (TPD) indicate that Fe<sub>2</sub>O<sub>3</sub>/CeO<sub>2</sub> is more easily reduced by CO than Fe<sub>2</sub>O<sub>3</sub>/γ-Al<sub>2</sub>O<sub>3</sub>, while the SO<sub>2</sub>-TPD patterns reveal that Fe<sub>2</sub>O<sub>3</sub>/γ-Al<sub>2</sub>O<sub>3</sub>, which is more seriously inhibited by SO<sub>2</sub> than Fe<sub>2</sub>O<sub>3</sub>/CeO<sub>2</sub>, adsorbs more strongly a larger amount of SO<sub>2</sub>. These two facts might be the predominant reasons why Fe<sub>2</sub>O<sub>3</sub>/CeO<sub>2</sub> has a far higher activity and stability.

CLASSIFICATION CODE: 001D16C05B; Applied sciences; Pollution, Nuisances; Atmospheric pollution  
001D06D11E4; Applied sciences; Energy; Thermal use of fuels; Atmospheric pollution, Nuisances  
001C01A03A; Chemistry; General chemistry, Physical chemistry; Catalysis  
230; Energy

CONTROLLED TERM: Flue gas purification; Physicochemical purification; Desulfurization; Chemical reduction; Sulfur dioxide; Carbon monoxide; Catalytic reaction; Heterogeneous catalysis; Supported catalyst; Alumina; Gamma form; Silica; **Titanium** Oxides; Cerium Oxides; Lanthanum Oxides; **Vanadium** Oxides; Molecular sieve; Zeolite; Iron Oxides; Nickel Oxides; **Manganese** Oxides; Molybdenum Oxides; Chromium Oxides; Cobalt Oxides; Platinum Oxides; Palladium Oxides; Characterization; Catalyst activity; Catalyst selectivity; Stability; Kinetics; Conversion rate; Medium effect; Metal support interaction; Experimental study

BROADER TERM: Transition metal Compounds; Platinoid Compounds

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ACCESSION NUMBER: 2000-0149274 PASCAL

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TITLE (IN ENGLISH): Superior pillared clay catalysts for selective catalytic reduction of nitrogen oxides for power plant emission control

AUTHOR: LONG R. Q.; YANG R. T.; ZAMMIT K. D.

CORPORATE SOURCE: Department of Chemical Engineering, University of Michigan, Ann Arbor, Michigan, United States; Electric Power Research Institute, Palo Alto, California, United States

SOURCE: Journal of the Air & Waste Management Association : (1995), (2000), 50(3), 436-442, 20 refs.  
ISSN: 1096-2247

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-11485, 354000082253290110

ABSTRACT: Fe.sup.3.sup.+-, Cr.sup.3.sup.+-, Cu.sup.2.sup.+-, Mn.sup.2.sup.+-, Co.sup.2.sup.+-, and Ni.sup.2.sup.+ -exchanged Al.sub.2O3-pillared interlayer clay (PILC) or TiO2-PILC catalysts are investigated for the selective catalytic reduction (SCR) of nitric oxide by ammonia in the presence of excess oxygen. Fe.sup.3.sup.+ -exchanged pillared clay is found to be the most active. The catalytic activity of Fe-TiO2-PILC could be further improved by the addition of a small amount of cerium ions or cerium oxide. H2O and SO2 increase both the activity and the product selectivity to N2. The maximum activity on the Ce-Fe-TiO2-PILC is more than 3 times as active as that on a **vanadium** catalyst. Moreover, compared to the V2O5-WO3/TiO2 catalyst, the **Fe**-TiO2-PILC catalysts show higher N2/N2O product selectivities and substantially lower activities (by ~85%) for SO2 oxidation to SO3 under the same reaction conditions. A 100-hr run in the presence of H2O and SO2 for the CeO2/Fe-TiO2-PILC catalyst showed no decrease in activity.

CLASSIFICATION CODE: 001D16C05B; Applied sciences; Pollution, Nuisances;

Atmospheric pollution  
 001D06D11E4; Applied sciences; Energy; Thermal use of  
 fuels; Atmospheric pollution, Nuisances  
 001C01A03A; Chemistry; General chemistry, Physical  
 chemistry; Catalysis  
 230; Energy

CONTROLLED TERM: Power plant; Flue gas purification; Physicochemical  
 purification; Selective catalytic reduction; Nitrogen  
 Oxides; Ammonia; Heterogeneous catalysis; Catalyst;  
 Pillared clay; Laponite; Aluminium Oxides;  
 Dealumination; Montmorillonite; **Titanium**  
 Oxides; Modified material; Ion exchange; Iron III  
 Ions; Chromium III Ions; Copper II Ions;  
**Manganese** II Ions; Cobalt II Ions; Nickel II  
 Ions; Cerium Ions; Cerium Oxides; Catalyst activity;  
 Kinetics; Conversion rate; Rate constant; Selectivity;  
 Medium effect; Experimental study

BROADER TERM: Transition metal Ions; Divalent metal Ions; Trivalent  
 metal Ions; Lanthanide Compounds

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ACCESSION NUMBER: 1999-0338808 PASCAL  
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 reserved.

TITLE (IN ENGLISH): Monopyroxenic basalt-based glass-ceramics  
 AUTHOR: EL-SHENNAWI A. W. A.; MANDOUR M. A.; MORSI M. M.;  
 ABDEL-HAMEED S. A. M.

CORPORATE SOURCE: National Research Centre, Dokki, Cairo 12622, Egypt  
 SOURCE: Journal of the American Ceramic Society, (1999),  
 82(5), 1181-1186, 16 refs.  
 ISSN: 0002-7820 CODEN: JACTAW

DOCUMENT TYPE: Journal  
 BIBLIOGRAPHIC LEVEL: Analytic  
 COUNTRY: United States  
 LANGUAGE: English  
 AVAILABILITY: INIST-101, 354000084634170110  
 ABSTRACT: Uniform, ultrafine, microcrystalline, hard, pyroxenic  
 glass-ceramic materials have been obtained  
 successfully from basalt rock; instead of adding  
 nucleation **catalysts**, the FeO:Fe  
 .sub.20.sub.3, CaO:Na.sub.20, and CaO:MgO ratios have  
 been rectified. This process has been accomplished by  
 deliberately adding the smallest permissible amounts  
 of oxidizers, limestone, dolomite, and soda ash (as  
 additives) that are necessary to fulfill the  
 monominerality requirements; these requirements affect  
 the melting, workability, crystallization, and  
 microstructure of the glass-ceramics. The melting  
 temperature decreases as the ratios decrease (beyond  
 certain limits); in addition, the workability,  
 crystallization, and microstructure also improve as  
 the ratios decrease. An almost-stable solid solution  
 of augite or aegirine-augite composition is the only  
 crystalline phase that is formed. The minimal  
 FeO:Fe.sub.20.sub.3 ratio and the likelihood of a  
 greater affinity of the Na.sup.+ cation for the  
 Fe.sub.3.sup.+ cation, rather than the Al.sub.3.sup.+  
 cation, may be responsible for increasing the  
 stability and widening of the crystallization field of

the complex **aluminum**-bearing pyroxene solid solution.

CLASSIFICATION CODE: 001D08B06F; Applied sciences; Chemistry; Materials science; Glasses

CONTROLLED TERM: Glass ceramics; Microcrystal; Pyroxene structure; Preparation; Raw materials; Basalts; Microstructure; Phase analysis; Crystalline phase; Differential thermal analysis; Optical microscopy; Scanning electron microscopy; X ray diffraction; **Silicon** Oxides; **Titanium** Oxides; Aluminium Oxides; Iron Oxides; **Magnesium** Oxides; **Calcium** Oxides; **Manganese** Oxides; **Sodium** Oxides; **Potassium** Oxides

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ACCESSION NUMBER: 1998-0535911 PASCAL

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TITLE (IN ENGLISH): Chemical and mechanistic aspects of the selective catalytic reduction of NO.sub.x by ammonia over oxide catalysts : A review

AUTHOR: BUSCA G.; LIETTI L.; RAMIS G.; BERTI F.

CORPORATE SOURCE: Istituto di Chimica, Facolta di Ingegneria, Universita di Genova, P.le J.F. Kennedy, 16129 Genova, Italy; Dipartimento di Chimica Industriale e Ingegneria Chimica "Giulio Natta", Politecnico di Milano, P.le Leonardo da Vinci 32, 20133 Milano, Italy; ENEL, DSR-CRAM, Via Monfalcone 15, 20132 Milano, Italy

SOURCE: Applied catalysis. B, Environmental, (1998), 18(1-2), 1-36, 196 refs.  
ISSN: 0926-3373

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: Netherlands

LANGUAGE: English

AVAILABILITY: INIST-18840B, 354000071495120010

ABSTRACT: The open literature concerning chemical and mechanistic aspects of the selective catalytic reduction of NO by ammonia (SCR process) on metal oxide catalysts is reviewed. Catalytic systems based on supported V.sub.2O.sub.5 (including the industrial TiO.sub.2-supported V.sub.2O.sub.5-WO.sub.3 and/or V.sub.2O.sub.5-MoO.sub.3 catalysts) and **catalysts** containing **Fe** .sub.2O.sub.3. CuO, MnO.sub.x and CrO.sub.x are considered. The results of spectroscopic studies of the adsorbed surface species, adsorption-desorption measurements, flow reactor and kinetic experiments are analyzed. The proposed reaction mechanisms are described and critically discussed. Points of convergence and of disagreement are underlined.

CLASSIFICATION CODE: 001C01A03B; Chemistry; General chemistry, Physical chemistry; Catalysis

CONTROLLED TERM: Theoretical study; Supported catalyst; **Vanadium** oxide; Tungsten oxide; **Titanium** oxide; Iron oxide; Chromium oxide; **Manganese** oxides; Ammonia; Silica; Molybdenum oxide; Catalytic reaction; Chemical reduction;



Reaction mechanism; Active site; Nitrogen; Adsorption;  
Desorption; Kinetics; Programmed temperature; Infrared  
spectrometry; Heterogeneous catalysis  
Transition metal Compounds

## BROADER TERM:

L118 ANSWER 23 OF 55 DISSABS COPYRIGHT (C) 2005 ProQuest Information and  
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ACCESSION NUMBER: 86:15667 DISSABS Order Number: AAR8624542

TITLE: THE HYDROGENATION OF CARBON MONOXIDE OVER RANEY

**IRON-MANGANESE CATALYSTS:**

EFFECT OF LEACHING REAGENTS ON ACTIVITY AND SELECTIVITY

AUTHOR: CHEN, KIEN-RU [PH.D.]

CORPORATE SOURCE: THE UNIVERSITY OF UTAH (0240)

SOURCE: Dissertation Abstracts International, (1986) Vol. 47, No.  
7B, p. 3084. Order No.: AAR8624542. 366 pages.

DOCUMENT TYPE: Dissertation

FILE SEGMENT: DAI

LANGUAGE: English

ENTRY DATE: Entered STN: 19921118

Last Updated on STN: 19921118

## ABSTRACT:

The activity and selectivity of Raney **iron-manganese catalysts** for the production of low molecular weight olefins (C(,2)-C(,4)) from hydrogen and carbon monoxide were investigated. The Raney catalysts were prepared by extracting **aluminum** from an **iron-manganese-aluminum** alloy with different reagents including **sodium** hydroxide, **potassium** hydroxide, **lithium** hydroxide and ammonium hydroxide.

The data on the extent of **aluminum** extraction indicated that **sodium** hydroxide was the most effective leaching reagent. The ratios of iron to **manganese** remained constant in the catalysts regardless of the leaching agent used, while the **aluminum** content of the catalysts was found to be dependent on the degree of leaching.

The **sodium** hydroxide and **potassium** hydroxide leached catalysts chemisorbed greater amounts of hydrogen and carbon monoxide. The **sodium** hydroxide and **lithium** hydroxide leached catalysts were more selective for low molecular weight olefins. The activity of the **potassium** hydroxide leached catalyst was similar to that of the **sodium** hydroxide leached catalyst.

(alpha)-iron and magnetite (Fe(,3)O(,4)) were found in the **sodium** hydroxide leached catalyst, while a mixed phase comprised of (alpha)-iron, magnetite and FeAl(,3) was identified in the other catalysts by X-ray diffraction study. The presence of an (alpha)-iron phase was identified in all the reduced catalysts. Except for the **sodium** hydroxide leached catalyst, FeAl(,3) was also identified in all the reduced catalysts. The predominant carbide phase in the spent **potassium** hydroxide leached catalyst was (chi)-Fe(,5)C(,2) while the predominant carbide phase in the other spent catalysts was (epsilon)-Fe(,2.2)C.

Surface iron was determined to be present as an iron oxide phase after leaching, and as an iron metal phase after reduction by ESCA (Electron Spectroscopy for Chemical

Analysis). The **manganese** was found to be in the oxide state during all stages in the life of the catalysts. The spent catalyst surface was found to be almost completely covered by carbon for the **sodium** hydroxide leached, **potassium** hydroxide leached and coprecipitated catalysts, while relatively smaller portions of the catalyst surface were covered by carbon for the spent **lithium** hydroxide leached and ammonium hydroxide leached catalysts. The results suggest that surface iron atoms, and not the **manganese** atoms, were the active centers.

CLASSIFICATION: 0765 ENGINEERING, PETROLEUM

L118 ANSWER 24 OF 55 DISSABS COPYRIGHT (C) 2005 ProQuest Information and Learning Company; All Rights Reserved on STN

ACCESSION NUMBER: 83:20462 DISSABS Order Number: AAR8400460

TITLE: THE HYDROGENATION OF CARBON MONOXIDE OVER RANEY  
**IRON-MANGANESE CATALYSTS**

AUTHOR: KIM, CHANGSOO [PH.D.]

CORPORATE SOURCE: THE UNIVERSITY OF UTAH (0240)

SOURCE: Dissertation Abstracts International, (1983) Vol. 44, No. 9B, p. 2834. Order No.: AAR8400460. 408 pages.

DOCUMENT TYPE: Dissertation

FILE SEGMENT: DAI

LANGUAGE: English

ENTRY DATE: Entered STN: 19921118

Last Updated on STN: 19921118

ABSTRACT:

The Raney Fe and Raney **Fe-Mn catalysts** were prepared by leaching the **aluminum** from Al-Fe (50/50 weight percent, wt %) and Al-Fe-Mn (59/38/3 wt %) alloys with an aqueous solution of **sodium** hydroxide (2 to 20 wt %) in the temperature range of 298 to 363 K by two different leaching modes, caustic or alloy addition.

The major phase in all the Raney Fe and Raney **Fe-Mn catalysts** was found to be (alpha)-Fe from X-ray diffraction study. The BET surface area of the Raney **Fe catalyst** ranged from 26 to 54 m<sup>2</sup>/g, while it ranged from 64 to 116 m<sup>2</sup>/g for Raney **Fe-Mn catalysts** depending on the preparation conditions. The crystallite size of the (alpha)-Fe in the Raney catalysts, estimated by X-ray line broadening, ranged from 70 to 250 (ANGSTROM) and it increased with increasing leaching temperature.

The optimum reduction temperature was found to be 648 K for the Raney **catalysts** (**Fe** and **Fe-Mn**) and 673 K for the precipitated **catalysts** (**Fe** and **Fe-Mn**) from thermogravimetric analyses. The Raney and precipitated catalysts, reduced in-situ in flowing hydrogen, were evaluated for the hydrogenation of carbon monoxide in a high-pressure fixed-bed reactor at the following standard reaction conditions: pressure = 1465 KPa, space velocity = 3.0 cm<sup>3</sup>g<sup>-1</sup>s<sup>-1</sup>, H<sub>2</sub>/CO = 2.0, and reaction temperature of 423 to 473 K.

The Raney Fe and Raney **Fe-Mn catalysts** were 2 to 4 times more active in terms of carbon monoxide conversion than the corresponding precipitated Fe and **Fe-Mn catalysts**, respectively, at the standard reaction conditions. The

activation energy ranged from 96 to 139 KJ/mol depending on different catalysts. The C(,2)-C(,4) hydrocarbon yields for the Raney Fe and the Raney Fe-Mn catalysts were similar, ranging from 34 to 40 percent at 453 K. However, the Raney Fe-Mn catalysts showed higher C(,2)-C(,4) olefin selectivity than the Raney Fe catalysts. The same trend was found for the precipitated Fe and coprecipitated Fe-Mn catalysts. Less than 7 wt % Mn in the coprecipitated Fe-Mn and in the Raney Fe-Mn catalysts increased the olefin selectivity of the catalyst by a factor of about two.

CLASSIFICATION: 0542 ENGINEERING, CHEMICAL

L118 ANSWER 25 OF 55 COMPENDEX COPYRIGHT 2005 EEI on STN DUPLICATE 5

ACCESSION NUMBER: 1986(12):196405 COMPENDEX

DOCUMENT NUMBER: 8612122753

; \*8656825

TITLE:

EFFECTS OF SODIUM, ALUMINIUM AND MANGANESE ON THE FISCHER-TROPSCH SYNTHESIS OVER ALUMINA-SUPPORTED IRON CATALYSTS.

AUTHOR: Abbot, J. (Flinders Univ of South Australia, Bedford Park, Aust); Clark, N.J.; Baker, B.G.

SOURCE: Appl Catal v 26 n 1-2 Sep 15 1986 p 141-153

CODEN: APCADI ISSN: 0166-9834

PUBLICATION YEAR: 1986

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

LANGUAGE: English

ABSTRACT:

Addition of sodium, aluminum or manganese to alumina-supported iron catalysts can influence hydrocarbon distributions produced by hydrogenation of carbon monoxide. Combinations of sodium (Na/Fe equals 0.1) with either aluminum (Al/Fe equals 0.9) or manganese (Mn/Fe equals 0.4) produce stable catalysts with high selectivity for light olefins and concurrent suppression of methane selectivity. These effects are probably due to influences on both the dispersion of iron the support, and electronic promotion. Ratios of olefin/paraffin equals 10 were observed in the range C3-C5, with methane selectivity reduced to less than 10%. (Author abstract) 27 refs.

CLASSIFICATION CODE: 803 Chemical Agents & Basic Industrial Chemicals; 804 Chemical Products; 545 Iron & Steel; 802 Chemical Apparatus & Plants; 522 Gas Fuels

CONTROLLED TERM: \*HYDROCARBONS: Synthesis; CATALYSTS:

IRON; CARBON MONOXIDE: Hydrogenation; METHANE

SUPPLEMENTARY TERM: FISCHER-TROPSCH SYNTHESIS; ALUMINA-SUPPORTED

IRON CATALYSTS; METHANE SELECTIVITY

ELEMENT TERM: Na; Al; Mn; C3-C5

L118 ANSWER 26 OF 55 COMPENDEX COPYRIGHT 2005 EEI on STN

ACCESSION NUMBER: 1993(6):73811 COMPENDEX

TITLE:

Enrichment in active component of the catalyst employed in oxidation of anthracene to 9,10-anthraquinone.

AUTHOR: Georgescu, V. (Inst of Physical Chemistry, Bucharest,

SOURCE: Rom); Pausescu, P.; Burzo, E.  
Reaction Kinetics and Catalysis Letters v 48 n 1 Jul  
1992.p 233-238  
CODEN: RKCLAU ISSN: 0133-1736

PUBLICATION YEAR: 1992  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
LANGUAGE: English  
ABSTRACT: A sample enriched in the content of D-phase (active  
phase in V-Fe-Mn-K catalyst for  
anthracene oxidation) was obtained by modification of  
the gravimetric ratio of cations in comparison with a  
standard sample. (Author abstract) 3 Refs.

CLASSIFICATION CODE: 803 Chemical Agents; 804 Chemical Products Generally;  
802.2 Chemical Reactions

CONTROLLED TERM: \*Catalysts; Oxidation; Vanadium compounds;  
Aromatic compounds; Manganese compounds;  
Potassium compounds; Iron compounds

SUPPLEMENTARY TERM: Anthracene oxidation; Anthraquinone production;  
Gravimetric ratio

ELEMENT TERM: D; Fe\*K\*Mn\*V; Fe sy 4; sy 4; K sy 4; Mn sy 4; V sy 4;  
V-Fe-Mn-K

L118 ANSWER 27 OF 55 COMPENDEX COPYRIGHT 2005 EEI on STN  
ACCESSION NUMBER: 1988(8):111776 COMPENDEX  
DOCUMENT NUMBER: 880870763  
TITLE: ON THE RATE ENHANCEMENT OF AMMONIA SYNTHESIS OVER IRON  
SINGLE CRYSTALS BY COADSORPTION OF ALUMINUM OXIDE WITH  
POTASSIUM.

AUTHOR: Strongin, D.R. (Univ of California, Berkeley, CA,  
USA); Somorjai, G.A.

SOURCE: Catal Lett v 1 n 1-3 Jan 1988 p 61-66  
CODEN: CALEER

PUBLICATION YEAR: 1988  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
LANGUAGE: English  
ABSTRACT: The behaviour of doubly promoted iron  
catalysts utilized for ammonia synthesis is  
modelled by the coadsorption of aluminum oxide and  
potassium on iron single crystal surfaces that were  
employed in high pressure reaction rate studies. The  
promoter effect of aluminum oxide is  
due to its interaction with iron oxide during the  
preparation stage of the industrial catalyst. After  
reduction, aluminum oxide stabilizes the most active  
Fe(111) and Fe(211) crystal surfaces. Potassium does  
not appear to be involved in the structural promotion  
but its presence on the active iron surfaces increases  
the rate of dinitrogen dissociation mostly by lowering  
the concentration of adsorbed ammonia, thus making  
more catalytic sites available for dinitrogen  
dissociation. Co-adsorbed potassium and alumina form a  
potassium aluminate compound that a) inhibits the  
aluminum oxide induced restructuring of iron and b)  
covers up the active iron sites for ammonia  
synthesis. (Author abstract) 9 refs.

CLASSIFICATION CODE: 803 Chemical Agents & Basic Industrial Chemicals; 804  
Chemical Products; 802 Chemical Apparatus & Plants;  
933 Solid State Physics

CONTROLLED TERM: \*CATALYSTS:Iron/Alumina/Potassium  
Oxide; AMMONIA:Synthesis; CHEMICAL REACTIONS:Reaction  
Kinetics; CATALYSIS; MOLECULAR CRYSTALS:Industrial  
Applications  
SUPPLEMENTARY TERM: IRON SINGLE CRYSTAL SURFACES; DOUBLY PROMOTED  
IRON CATALYSTS; KNUDSEN TYPE CELL;  
DINITROGEN DISSOCIATION; POTASSIUM ALUMINATE COMPOUND  
ELEMENT TERM: Fe

L118 ANSWER 28 OF 55 COMPENDEX COPYRIGHT 2005 EEI on STN

ACCESSION NUMBER: 1987(3):33120 COMPENDEX

DOCUMENT NUMBER: \*874886

; 870320725

TITLE: REASONS FOR CHANGES IN THE EXPONENT AND RATE CONSTANT  
IN THE TEMKIN EQUATION FOR THE AMMONIA SYNTHESIS  
REACTION: I.EFFECT OF DISPERSIVITY AND CHEMICAL  
COMPOSITION OF METALLIC CATALYSTS ON THE REACTION  
KINETICS.

AUTHOR: Samchenko, N.P. (Acad of Sciences of the UkrSSR, Kiev,  
USSR); Golodets, G.I.

SOURCE: Kinet Catal v 27 n 2 pt 1 Mar-Apr 1986 p 324-329

CODEN: KICAA8 ISSN: 0023-1584

PUBLICATION YEAR: 1986

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical

LANGUAGE: English

ABSTRACT: The general and fundamental reason for the change in  
the exponent, m, and the rate constant, k, in the  
Temkin equation for the ammonia synthesis reaction is  
the change in the maximum heat of chemisorption of  
nitrogen,  $q$  degree  $N_2$ , and the change in the degree  
of surface coverage by nitrogen this causes. The value  
of  $q$  degree  $N_2$ , and consequently m and k, may vary  
because of the chemical nature of the metal as well as  
because of a change in the dispersivity of the  
metal. the chief role of the promoters,  
additions of aluminum oxide and alkali,  
consists of creating and maintaining that dispersivity  
of the iron for which  $q$  degree  $N_2$  is approximately the  
optimum. (Edited author abstract) 10 refs.

CLASSIFICATION CODE: 803 Chemical Agents & Basic Industrial Chemicals; 804  
Chemical Products; 802 Chemical Apparatus & Plants;  
545 Iron & Steel

CONTROLLED TERM: \*AMMONIA:Synthesis; CATALYSIS; CATALYSTS:  
Iron; NITROGEN:Adsorption; ALUMINUM COMPOUNDS

SUPPLEMENTARY TERM: ALUMINUM OXIDE; TEMKIN EQUATION; EFFECT OF  
DISPERSIVITY

ELEMENT TERM:  $N_2$

L118 ANSWER 29 OF 55 JAPIO (C) 2005 JPO on STN

ACCESSION NUMBER: 1996-332388 JAPIO

TITLE: AMMONIA DECOMPOSING AGENT

INVENTOR: NAKATSUJI TADAO; NAGANO KAZUHIKO; IKEDA SHIROJI

PATENT ASSIGNEE(S): SAKAI CHEM IND CO LTD

PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 08332388	A	19961217	Heisei	B01J027-25

## APPLICATION INFORMATION

STN FORMAT: JP 1995-175362 19950606  
ORIGINAL: JP07175362 Heisei  
PRIORITY APPLN. INFO.: JP 1995-175362 19950606  
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined  
Applications, Vol. 1996

## INT. PATENT CLASSIF.:

MAIN: B01J027-25  
SECONDARY: B01D053-86

## ABSTRACT:

PURPOSE: To decompose and remove ammonia efficiently by causing a carrier to bear the active species of an oxide of a specific element and a group of nitrate as an ammonia decomposing agent.

CONSTITUTION: A carrier of an oxide of **titanium** or **aluminum** and zeolite is caused to bear an active species selected from among oxides group Ib elements such as Cu and Ag of the periodic table, group IIb, elements such as Zn, group IIIa elements such as La, Ce, group IIIb elements such as Al, Ca, group IVa elements such as Ti, Zr group IVb elements such as Ge, Sn group Va elements such as V, Nb, group VIa elements such as Cr, Mo group VIIa elements such as Mn, or group VIII elements such as Fe, Co, Ni, and a nitrate group of **manganese** nitrate or **iron** nitrate. The **catalyst** thus obtained demonstrates a high activity in the decomposition of ammonia, because the selective reduction reaction of NOx is generated by ammonia by deposition of an NOx source on the catalyst.

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L118 ANSWER 30 OF 55 JAPIO (C) 2005 JPO on STN

ACCESSION NUMBER: 1989-228547 JAPIO  
TITLE: CATALYST FOR CLEANING EXHAUST GAS  
INVENTOR: MURAKAMI HIROSHI; IHARA KAZUNORI; YAGI KUNIHIRO  
PATENT ASSIGNEE(S): MAZDA MOTOR CORP  
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 01228547	A	19890912	Heisei	B01J023-89

## APPLICATION INFORMATION

STN FORMAT: JP 1988-52468 19880304  
ORIGINAL: JP63052468 Showa  
PRIORITY APPLN. INFO.: JP 1988-52468 19880304  
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined  
Applications, Vol. 1989

## INT. PATENT CLASSIF.:

MAIN: B01J023-89  
SECONDARY: B01D053-36

## ABSTRACT:

PURPOSE: To reduce the diffusion of grain boundary and thus prevent the intrusion of iron chromium to a catalyst layer by providing the catalyst layer containing the catalyst components of precious metal on an iron support containing chromium, at least either of which has a crystal particle size of 250~500μm.

CONSTITUTION: A catalytic layer containing the catalytic component of precious metal is deposited on an iron support containing chromium, at least either of which has a crystal particle size of 250~500μm, thereby forming a catalyst for cleaning exhaust gas. It is preferable that at least an element of **vanadium**, **manganese**, **titanium** and niobium more chemically affinitive for carbon and nitrogen in the exhaust gas than iron and chromium be added to the

iron catalyst support containing chromium in the total amount of 0.1&sim;0.5wt.%. It is more preferable to provide an intrusion prevention layer between the support and the catalyst layer to prevent the diffusion of the iron and chromium into the catalyst layer.

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L118 ANSWER 31 OF 55 JAPIO (C) 2005 JPO on STN  
ACCESSION NUMBER: 1988-215683 JAPIO  
TITLE: PRODUCTION OF TETRAMETHOXYASILANE  
INVENTOR: KOYAMA GOJI; ASANO MARIKO  
PATENT ASSIGNEE(S): MITSUBISHI GAS CHEM CO INC  
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 63215683	A	19880908	Showa	C07F007-04

APPLICATION INFORMATION

STN FORMAT: JP 1987-44088 19870228  
ORIGINAL: JP62044088 Showa  
PRIORITY APPLN. INFO.: JP 1987-44088 19870228  
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1988

INT. PATENT CLASSIF.:

MAIN: C07F007-04  
SECONDARY: B01J031-02

ABSTRACT:

PURPOSE: To obtain the titled compound in high yield at a high reaction rate, by reacting silicon with methanol in tetramethoxysilane solvent in the presence of an alkali metal methoxide **catalyst** using **iron** powder as a promoter.

CONSTITUTION: Iron powder is present as a **promoter** in producing tetramethoxysilane by reacting **silicon** with methanol in tetramethoxysilane solvent in the presence of an alkali metal methoxide catalyst (example; sodium methoxide, etc.). The particle diameter of the iron powder is preferably  $\leq 30\mu$ . The amount of the iron powder used as the promoter is preferably 10&sim;70wt.%.

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L118 ANSWER 32 OF 55 JAPIO (C) 2005 JPO on STN  
ACCESSION NUMBER: 1987-260798 JAPIO  
TITLE: PRODUCTION OF SILICON CARBIDE WHISKER  
INVENTOR: KAJI YOSHIRO; YURA KEITA; SHIMAZAKI KATSUNORI; SAEKI KOZO; YAMAMOTO MASAKAZU  
PATENT ASSIGNEE(S): KOBE STEEL LTD  
KANEBO LTD  
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 62260798	A	19871113	Showa	C30B029-62

APPLICATION INFORMATION

STN FORMAT: JP 1986-104169 19860506  
ORIGINAL: JP61104169 Showa  
PRIORITY APPLN. INFO.: JP 1986-104169 19860506  
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1987

INT. PATENT CLASSIF.:

MAIN: C30B029-62

## ABSTRACT:

PURPOSE: To obtain high-purity silicon carbide whisker having long fibers and high aspect ratio, by reacting a silicon-containing molded article containing a specific amount of silicon dioxide with powdery carbon raw material in a hydrogen gas atmosphere under heating.

CONSTITUTION: A silicon-containing molded article containing  $\geq 90\text{wt}\%$  or  $\leq 60\text{wt}\%$  silicon dioxide is heat-treated with powdery carbon raw material (carbon black) in a hydrogen gas atmosphere. The hydrogen gas atmosphere contains  $\geq$  about 20vol% hydrogen and the rest of a nonoxidizing inert gas and the heating is carried out at  $\geq 1,400^\circ\text{C}$  for about 30min $\sim$ 10hr. The heat treatment is carried out in the presence of both a

**catalyst** (iron, nickel, etc.) and a reaction **promoter** (sodium chloride, etc.). After **silicon carbide** whisker is formed by the heat treatment, the unreacted carbon raw material is further burnt at about  $600\sim 1,100^\circ\text{C}$  to give straight whisker free from flex is obtained in high yield and in high productivity.

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L118 ANSWER 33 OF 55 JAPIO (C) 2005 JPO on STN

ACCESSION NUMBER: 1985-183035 JAPIO

TITLE: **CATALYST CONTAINING IRON-TITANIUM-MANGANESE/OR VANADIUM-CONTAINING AMORPHEOUS SILICATE AS ACTIVE COMPONENT**

INVENTOR: SANO YOJI; OKABE KIYOMI; HAGIWARA HIROYUKI; YASUMOTO YOSHIRO; YANAGISAWA HIROSHI; TAKATANI HARUO

PATENT ASSIGNEE(S): AGENCY OF IND SCIENCE & TECHNOL

PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 60183035	A	19850918	Showa	B01J021-16

## APPLICATION INFORMATION

STN FORMAT: JP 1984-39057 19840229

ORIGINAL: JP59039057 Showa

PRIORITY APPLN. INFO.: JP 1984-39057 19840229

SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1985

INT. PATENT CLASSIF.:

MAIN: B01J021-16

ADDITIONAL: C07C001-04; C10G003-00

## ABSTRACT:

PURPOSE: To attain to enhance catalytic activity, by containing iron-**titanium- manganese/or vanadium**-containing amorphous silicate as an active component.

CONSTITUTION: As the composition of a stock material reaction mixture, on the basis of a mol ratio, Si/Fe is set to 2 or more, Ti/Fe to  $0.01\sim 3$ , Mn/Fe to  $0.01\sim 3$ ,  $\text{H<SB>2</SB>O/SiO<SB>2</SB>}$  to  $30\sim 70$ ,  $\text{R<SB>4</SB>N<SP>+</SP>/SiO<SB>2</SB>}$  (wherein  $\text{R<SB>4</SB>H<SP>+</SP>}$  is the amount of the tetraalkylammonium ion in the mixture) to  $0.08\sim 0.16$  and  $\text{OH<SP>-</SP>/SiO<SB>2</SB>}$  (wherein  $\text{OH<SP>-</SP>}$  is the amount of the hydroxyl group in the mixture) to  $0.07\sim 3$  and this aqueous gel mixture is heated and stirred at a reaction temperature of  $0\sim 100^\circ\text{C}$  for  $0.1\sim 200\text{hr}$  to perform hydrothermal synthesis. This amorphous silicate is used as the reaction catalyst of Fischer-Tropsch synthesis.

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L118 ANSWER 34 OF 55 JAPIO (C) 2005 JPO on STN

ACCESSION NUMBER: 2005-029518 JAPIO



TITLE: METHOD FOR PRODUCING ORTHOALKYLATED HYDROXYAROMATIC COMPOUND  
INVENTOR: OTA HITOSHI; AGA MASARU  
PATENT ASSIGNEE(S): ASAHI KASEI CHEMICALS CORP  
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2005029518	A	20050203	Heisei	C07C037-16

## APPLICATION INFORMATION

STN FORMAT: JP 2003-271717 20030708  
ORIGINAL: JP2003271717 Heisei  
PRIORITY APPLN. INFO.: JP 2003-271717 20030708  
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2005

## INT. PATENT CLASSIF.:

MAIN: C07C037-16  
SECONDARY: C07C039-07  
ADDITIONAL: C07B061-00

## ABSTRACT:

PROBLEM TO BE SOLVED: To provide a method for producing an orthoalkylated hydroxyaromatic compound by bringing a hydroxyaromatic compound into contact with an alkyl alcohol by using a fluidized bed in a vapor phase; and to provide an alkylation catalyst for the production method, having excellent resistance to breakage and abrasion resistance, and simultaneously having good activity and selectivity, and a long life.  
SOLUTION: The method for producing the orthoalkylated hydroxyaromatic compound involves carrying out a vapor-phase catalytic reaction of the hydroxyaromatic compound with the alkyl alcohol in the presence of a metal oxide catalyst by using the fluidized bed. The metal oxide catalyst contains iron, vanadium, manganese, magnesium or chromium as a metal component, and has 2-20 m<sup>2</sup>/g surface area and 0.5-2 g/ml bulk density.  
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L118 ANSWER 35 OF 55 JAPIO (C) 2005 JPO on STN

ACCESSION NUMBER: 2002-265396 JAPIO  
TITLE: METHOD FOR MANUFACTURING STYRENE MONOMER  
INVENTOR: MIMURA NAOKI  
PATENT ASSIGNEE(S): NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL & TECHNOLOGY  
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2002265396	A	20020918	Heisei	C07C005-333

## APPLICATION INFORMATION

STN FORMAT: JP 2001-64769 20010308  
ORIGINAL: JP2001064769 Heisei  
PRIORITY APPLN. INFO.: JP 2001-64769 20010308  
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2002

## INT. PATENT CLASSIF.:

MAIN: C07C005-333  
SECONDARY: B01J023-72; B01J023-745; B01J023-76; B01J023-78; B01J023-80; B01J023-86; C07C015-46  
ADDITIONAL: C07B061-00

## ABSTRACT:

PROBLEM TO BE SOLVED: To provide a method for manufacturing styrene

monomer at a low cost on an industrial scale by using a catalyst having excellent catalytic activity in a process which manufactures styrene by allowing ethylbenzene to come into contact with a catalyst in the presence of carbon dioxide.

SOLUTION: Ethylbenzene is brought into contact with a **catalyst** containing (1) **iron** oxide, (2) **aluminum** oxide and (3) an oxide of at least one kind of element selected from **magnesium**, **strontium**, **barium**, gallium, zinc, copper, **zirconium**, chrome, lanthanum, cerium, nickel, cobalt, **manganese**, yttrium, niobium, **titanium** and boron in the presence of a carbon dioxide-containing gas.

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L118 ANSWER 36 OF 55 CEABA-VTB COPYRIGHT 2005 DECHEMA on STN  
ACCESSION NUMBER: 1970(11):1145 CEABA-VTB FILE SEGMENT V  
DOCUMENT NUMBER: CEABA: 1970:8608237  
TITLE: The recovery of platinum and rhenium from spent reforming catalysts  
AUTHOR: Mastny, L.; Bumbova, M.; Kalalova, E.; Svajgl, O.; Prazak, V. (Vysoka Skola Chemickotechnol., Praha, Czechoslovakia)  
SOURCE: Chem. Prum. (1986) 36(5), p.342-245  
CODEN: CHPUA4 ISSN: 0009-2789  
DOCUMENT TYPE: Journal  
LANGUAGE: Czech  
ABSTRACT: An ion exchange method is described for recovery of platinum and rhenium from alumina-supported **catalysts** containing **iron** and **titanium** promoters. The deactivated catalyst is oxidized and treated with acid to give a solution containing the metals as chlorides: these are separated on a single ion exchange column.  
CLASSIFICATION CODE: 54 Thermal Methods of Separation  
CONTROLLED TERM: CATALYST; ION EXCHANGE; METAL RECOVERY

L118 ANSWER 37 OF 55 CEABA-VTB COPYRIGHT 2005 DECHEMA on STN  
ACCESSION NUMBER: 1970(11):6953 CEABA-VTB FILE SEGMENT V  
DOCUMENT NUMBER: CEABA: 1970:8709177  
TITLE: Light olefin synthesis from carbon monoxide and hydrogen on modified **ferric** **catalysts**  
AUTHOR: Benbenek, S.; Fedorynska, E.; Winiarek, P.; Reinhercs, J.; Wilk, B. (Politechniki Warszawskiej, Poland)  
SOURCE: Przem. Chem. (1986) 65(3), p.136-138  
CODEN: PRCHAB ISSN: 0033-2496  
DOCUMENT TYPE: Journal  
LANGUAGE: Polish  
ABSTRACT: The synthesis of light olefins was studied at 1 MPa on iron-**manganese**, -**magnesium**, -copper-zinc oxide-**potassium** oxide, and -**titanium**-zinc oxide-**potassium** oxide. The highest yield was obtained with a 20:80 **iron-manganese catalyst** and the highest selectivity with a 100:20:10:8 iron-copper-zinc oxide-**potassium** oxide. Catalyst activity and selectivity in relation to pressure, temperature, and catalyst load were examined.  
CLASSIFICATION CODE: 72 Project Engineering  
CONTROLLED TERM: CATALYST ACTIVITY; CATALYTIC HYDROGENATION; OLEFIN

## PRODUCTION

L118 ANSWER 38 OF 55 CEABA-VTB COPYRIGHT 2005 DECHEMA on STN  
ACCESSION NUMBER: 1985(05):7791 CEABA-VTB FILE SEGMENT V  
DOCUMENT NUMBER: CEABA: 1985:175847  
TITLE: Infrared studies of metal additive effects on CO  
chemisorption modes on SiO<sub>2</sub>-supported Rh-Mn, -Ti, and  
-Fe catalysts  
Infrarotuntersuchung der Einflüsse von  
Metalladditiven auf die Chemisorption von CO auf SiO<sub>2</sub>  
getragene Rh-Mn, -Ti und -Fe-Katalysatoren  
AUTHOR: Ichikawa, M.; Fukushima, T.  
SOURCE: J. Phys. Chem. (1985) 89(9), p.1564-1567, 3f,241  
CODEN: JPCHAX ISSN: 0022-3654  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
ABSTRACT IN GERMAN: Zugabe von Mn, Ti oder Zr (unter den  
Reaktionsbedingungen als Oxid) zu Rh/SiO<sub>2</sub>-  
Trägerkatalysatoren erhöht die katalytische  
Aktivität für die Reaktion von CO mit H<sub>2</sub> um das  
10-50fache unter Beibehaltung der Selektivität für  
verschiedene oxydierte C<sub>2</sub>-Verbindungen. Zugabe von Fe  
führt dagegen zu einem größeren Methanolanteil und  
der Bildung von Methanol ohne starke Änderung der  
Aktivität. In den IR-Spektren von chemisorbiertem CO  
an Rh/SiO<sub>2</sub>-Katalysatoren mit den oxophilen Ionen von  
Mn, Ti oder Zr sind die Streckschwingungsfrequenzen  
ungewöhnlich stark reduziert. Demnach wird der  
Kohlenstoff des CO an Rh gebunden und zugleich der  
Sauerstoff an das elektropositive Metallion oder eine  
Sauerstoffleerstelle (ähnlich Lewis-Säureaddukten).  
Dadurch wird die Aktivierungsenergie für die  
CO-Dissoziation verringert. Dagegen wird die  
verbrückte CO-Chemisorption geometrisch durch  
Rh-Fe-Legierungsbildung an der Rh-Oberfläche bei  
Fe-Zugabe verhindert. (Weckend)  
CLASSIFICATION CODE: 4688 Catalysts, promoters, activators, inhibitors,  
stabilizers  
5824 Catalytic processes  
CONTROLLED TERM: CARBON MONOXIDE; CARRIER; CATALYST; CHEMISORPTION;  
ETHANOL; GAS ADSORPTION; IRON; **MANGANESE**;  
ORGANIC CHEMICAL PRODUCTION; RHODIUM; **TITANIUM**  
; **ZIRCONIUM**

L118 ANSWER 39 OF 55 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on  
STN  
ACCESSION NUMBER: 1995:391827 SCISEARCH  
THE GENUINE ARTICLE: RB602  
TITLE: FISCHER-TROPSCH SYNTHESIS - IMPACT OF POTASSIUM AND  
**ZIRCONIUM PROMOTERS** ON THE ACTIVITY AND  
STRUCTURE OF AN ULTRAFINE IRON-OXIDE  
**CATALYST**  
AUTHOR: OBRIEN R J (Reprint); XU L G; MILBURN D R; LI Y X;  
KLABUNDE K J; DAVIS B H  
CORPORATE SOURCE: UNIV KENTUCKY, CTR APPL ENERGY RES, 3572 IRON WORKS PIKE,  
LEXINGTON, KY 40511 (Reprint); KANSAS STATE UNIV AGR &  
APPL SCI, DEPT CHEM, MANHATTAN, KS 66506  
COUNTRY OF AUTHOR: USA  
SOURCE: TOPICS IN CATALYSIS, (1995) Vol. 2, No. 1-4, pp. 1-15.  
ISSN: 1011-372X.

PUBLISHER: BALTZER SCI PUBL BV, ASTERWEG 1A, 1031 HL AMSTERDAM,  
NETHERLANDS.  
DOCUMENT TYPE: Article; Journal  
FILE SEGMENT: PHYS  
LANGUAGE: English  
REFERENCE COUNT: 32  
ENTRY DATE: Entered STN: 1995  
Last Updated on STN: 1995

## ABSTRACT:

Slurry phase Fischer-Tropsch synthesis was conducted with an ultrafine \*\*\*iron\*\*\* oxide catalyst promoted with either 0.5 at% K or 1.0 at% Zr or both. Pretreatment in CO yielded higher conversions and a more stable catalyst than activation in hydrogen or synthesis gas. Hydrogen pretreatment of K promoted catalysts and synthesis gas activation in general were less effective. Mossbauer spectroscopy and XRD showed chi-Fe<sub>5</sub>C<sub>2</sub> and epsilon'-Fe<sub>2</sub>.2C were formed during pretreatment in CO and did not depend on promoters present. Catalysts pretreated in H<sub>2</sub> were reduced to metallic Fe and Fe<sub>3</sub>O<sub>4</sub>; promotion with K and Zr decreased the extent of reduction. Hydrogen pretreated catalysts, promoted with K, lost surface area and carbided rapidly under synthesis conditions. Activation in synthesis gas reduced all catalysts to Fe<sub>3</sub>O<sub>4</sub>. Subsequent synthesis did not affect the phase present for the unpromoted and Zr promoted catalysts while those promoted with K formed chi-Fe<sub>5</sub>C<sub>2</sub> and epsilon'-Fe<sub>2</sub>.2C. It is concluded that pretreatment type is more important to the catalyst activity during the early period of synthesis than the impact of promotion with K and/or Zr and that changes in the bulk composition of iron catalysts do not necessarily correlate with changes in activity.

CATEGORY: CHEMISTRY, PHYSICAL; CHEMISTRY, APPLIED  
SUPPLEMENTARY TERM: FISCHER-TROPSCH SYNTHESIS; ULTRAFINE IRON OXIDE  
CATALYST; MOSSBAUER; XRD; BET; PRETREATMENT;  
PROMOTERS; IRON CARBIDES  
SUPPL. TERM PLUS: LIQUID-PHASE HYDROGENATION; CARBON-MONOXIDE;  
MOSSBAUER-SPECTROSCOPY; PARTICLES; SELECTIVITY

## REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
=====	=====	=====	=====	=====
ABREVAYA, H	1990		203	P INDIRECT LIQUEFACT
AMELSE, J A	1978	82	558	J PHYS CHEM-US
ANDERSON, R B	1956	4	29	CATALYSIS
ANDERSON, R B	1984			FISCHERTROPSCH SYNTH
BERNAS, H	1967	28	17	J PHYS CHEM SOLIDS
BERRY, F J	1989	85	467	J CHEM SOC FARAD T 1
BILOEN, P	1979	58	95	J CATAL
BREY, W S	1972	25	81	J CATAL
BUKUR, D B	1989	28	1130	IND ENG CHEM RES
BUKUR, D B	1990	29	194	IND ENG CHEM RES
BUKUR, D B	1990	29	1588	IND ENG CHEM RES
DRY, M E	1981	1	CH4	CATALYSIS SCI TECHNO
DRY, M E	1968	11	18	J CATAL
DRY, M E	1969	15	190	J CATAL
ECKSTROM, H C	1950	72	1042	J AM CHEM SOC
FISCHER, F	1926	7	97	BRENNST CHEM
GANESAN, P	1979	18	191	IND ENG CHEM PROD RD
HUANG, C S	1993	11	639	FUEL SCI TECHN INT
HUANG, C S	1993	11	1289	FUEL SCI TECHN INT
ITO, H	1988	40	53	APPL CATAL
ITO, H	1990	67	1	APPL CATAL
ITO, H	1991	67	215	APPL CATAL
ITO, H	1991	77	37	APPL CATAL

LECAER, G	1982	86	4799	J PHYS CHEM-US
LOX, E S	1988	40	197	APPL CATAL
MCCARTNEY, J T	1953	57	730	J PHYS CHEM-US
REYMOND, J P	1982	75	39	J CATAL
STORCH, H H	1951			FISCHERTROPSCH RELAT
TAU, L M	1989	56	95	APPL CATAL
TOPSOE, H	1973	31	346	J CATAL
ZAROCHAK, M F	1986		58	P INDIRECT LIQUEFACT
ZHANG, H B	1985	95	325	J CATAL

L118 ANSWER 40 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2005-424537 [43] WPIDS  
 DOC. NO. CPI: C2005-130281  
 TITLE: Sulfur removal composition for hydrocarbon stream, contains metal oxide, silica-containing material, gallium-containing material, **aluminum**-containing material, and **promoter** metal having portion present as reduced valence **promoter** metal.  
 DERWENT CLASS: H04 J01  
 INVENTOR(S): GISLASON, J J; TURAGA, U T  
 PATENT ASSIGNEE(S): (GISL-I) GISLASON J J; (TURA-I) TURAGA U T; (CONO) CONOCOPHILLIPS CO  
 COUNTRY COUNT: 108  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
US 2005127325	A1	20050616	(200543)*		13	C09K003-00	
WO 2005058483	A1	20050630	(200544)	EN		B01J021-00	
RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT							
KE LS LT LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG							
ZM ZW							
W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE							
DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG							
KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ							
OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG							
US UZ VC VN YU ZA ZM ZW							

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 2005127325	A1	US 2003-735562	20031212
WO 2005058483	A1	WO 2004-US41279	20041210

PRIORITY APPLN. INFO: US 2003-735562 20031212  
 INT. PATENT CLASSIF.:

MAIN: B01J021-00; C09K003-00  
 SECONDARY: B01J020-00; B01J021-08; B01J021-12; B01J021-14;  
 B01J023-00; B01J023-02; B01J023-06; B01J023-08;  
 B01J023-40; B01J023-42; B01J023-44; B01J023-48;  
 B01J023-50; B01J023-56; B01J023-70; B01J023-74;  
 C10G017-00; C10G025-00; C10G029-00

## BASIC ABSTRACT:

US2005127325 A UPAB: 20050707  
 NOVELTY - A sulfur removal composition comprises a metal oxide; a silica-containing material; a gallium-containing material; an **aluminum**-containing material from alumina and/or aluminate; and a

**promoter** metal. A portion of the **promoter** metal is present as a reduced valence **promoter** metal.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(A) a method for the production of a sulfur-removal composition of the invention; and

(B) a process for the removal of sulfur from a hydrocarbon stream.

The composition is produced by a step selected from incorporating a gallium-containing substance into or onto a first calcined mixture, or incorporating a gallium-containing substance and a **promoter** metal simultaneously into or onto a second calcined mixture. The first calcined mixture comprises a liquid, a metal-containing compound, a silica-containing material, alumina, and a **promoter** metal, to form a first incorporated mixture. The second calcined mixture comprises a liquid, a metal-containing compound, silica-containing material, and alumina, to form a second incorporated mixture. The first incorporated mixture or the second incorporated mixture is dried to form a dried incorporated mixture. The dried incorporated mixture is calcined to form a calcined incorporated mixture. The calcined incorporated mixture is reduced with a suitable reducing agent under suitable conditions to produce a composition having a reduced valence **promoter** content. The composition is recovered. Removal of sulfur from a hydrocarbon stream comprising:

(1) contacting the hydrocarbon stream with the above specified sulfur removal composition;

(2) separating the desulfurized hydrocarbon stream from the sulfurized composition to form a separated desulfurized hydrocarbon stream and a separated sulfurized composition;

(3) regenerating a portion of the separated sulfurized composition in a regeneration zone to remove a portion of the sulfur contained in the composition and/or thus forming a regenerated composition;

(4) reducing the regenerated composition in an activation zone to provide a reduced composition having a reduced valence **promoter** metal content which will effect the removal of sulfur from a hydrocarbon stream when contacted with same; and

(5) returning a portion of the reduced composition to the desulfurization zone.

USE - For the removal of sulfur from hydrocarbon stream comprising fuel from cracked-gasoline and/or diesel fuel (claimed).

ADVANTAGE - The sulfur removal composition has sufficient attrition resistance that removes sulfur from hydrocarbon streams and that can be used in fluidized, transport, moving, or fixed bed reactors. It can be produced in an economical manner.

Dwg.0/0

FILE SEGMENT: CPI  
FIELD AVAILABILITY: AB  
MANUAL CODES: CPI: H04-A01; J01-D01

L118 ANSWER 41 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2005-480683 [49] WPIDS  
DOC. NO. NON-CPI: N2005-391097  
DOC. NO. CPI: C2005-146642  
TITLE: Catalyst for converting hydrogen or hydrocarbons to produce heat without a flame is made by impregnating a carrier with a polarized metal salt solution.  
DERWENT CLASS: A35 J04 Q73  
INVENTOR(S): ARIE SINT, N  
PATENT ASSIGNEE(S): (NIJM-N) NIJMAPROBE BV  
COUNTRY COUNT: 31  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
EP 1547685	A1	20050629	(200549)*	GE	12	B01J037-34	
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR							

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1547685	A1	EP 2003-29838	20031224

PRIORITY APPLN. INFO: EP 2003-29838 20031224

## INT. PATENT CLASSIF.:

MAIN: B01J037-34  
 SECONDARY: B01J023-38; B01J023-74; B01J037-02; F23D014-18

## BASIC ABSTRACT:

EP 1547685 A UPAB: 20050823

NOVELTY - A catalyst for converting hydrogen or hydrocarbon liquids or gases to produce heat is prepared using a fibrous carrier of **aluminum of silicon**, e.g. with a density of less than 4 g/cm<sup>3</sup>, and applying an aqueous solution of a metal salt with an organic solvent **promoter**. Prior to application the solution is magnetically polarized to improve solubility. The material is then dried at 40 to 300 deg. C, preferably 100 to 200 deg. C.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a catalytic heater containing a pre-heating arrangement (5) and a catalyst of this type. The housing (4) is open on one side and has an inlet (7) for a gas or liquid, preferably supplied at a pressure of less than 5 mbar.

USE - Catalyst for producing heat from hydrogen or hydrocarbons without a flame, e.g. for hot water heating (claimed), space heating (claimed), heating air production (claimed), lacquer drying (claimed), heating articles in shaping plastics or rubber (claimed), disposal of exhaust gases (claimed).

ADVANTAGE - Absence of an open flame extends range of application. Radiation wavelength can be influenced by supply pressure and catalyst density.

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic view of a heater.

housing 4

preheater 5

gas distribution pipe 6

gas inlet 7

preheater connection 8

Dwg.3/4

FILE SEGMENT: CPI GMPI  
 FIELD AVAILABILITY: AB; GI  
 MANUAL CODES: CPI: A11-A02; J04-E04

L118 ANSWER 42 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN

ACCESSION NUMBER: 2004-727852 [71] WPIDS

DOC. NO. CPI: C2004-255684

TITLE: Nickel and/or cobalt coated sponge catalyst used in preparation of organic compounds, comprises sponge support and metal consisting of nickel and/or cobalt.

DERWENT CLASS: E19 E37 H04 J04

INVENTOR(S): SCHMIDT, S R

PATENT ASSIGNEE(S): (SCHM-I) SCHMIDT S R; (GRAC) GRACE &amp; CO-CONN W R

COUNTRY COUNT: 108

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
US 2004199019	A1	20041007	(200471)*		15	B01J023-74<--	
WO 2004091777	A2	20041028	(200471)	EN		B01J025-00	
RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE							
LS LU MC MW MZ NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW							
W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE							
DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG							
KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ							
OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG							
US UZ VC VN YU ZA ZM ZW							

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 2004199019	A1	US 2003-408271	20030407
WO 2004091777	A2	WO 2004-US9850	20040331

PRIORITY APPLN. INFO: US 2003-408271 20030407

## INT. PATENT CLASSIF.:

MAIN: B01J023-74; B01J025-00  
 SECONDARY: B01J025-02; B01J035-00; B01J037-02; B01J037-16;  
 C07C001-04; C07C029-02; C07C031-26

## BASIC ABSTRACT:

US2004199019 A UPAB: 20041104

NOVELTY - A nickel and/or cobalt coated sponge catalyst comprises sponge support having surface, and metal consisting of nickel and/or cobalt coated on portion of the surface of the support.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of preparing nickel and/or cobalt plated sponge catalyst comprises preparing an aqueous slurry containing sponge support having surface area; adding to the slurry a salt of metal consisting of nickel and/or cobalt to deposit the metal on portion of the surface area of the support and to form a plating slurry containing ions of metal; adding a reducing agent to the plating slurry to deposit the metal ions in the slurry to corresponding metal; adjusting pH and temperature of plating slurry to deposit the metal on surface of the support and form metal coated sponge catalyst; and removing the catalyst from the plating slurry.

USE - Used in preparation of organic compounds, and in removal of sulfur, nitrogen, and phosphorous containing compounds and heavy metals from petroleum feedstock (claimed).

ADVANTAGE - The invention has activity and/or selectivity comparable to conventional nickel and/or cobalt sponge catalyst, but require reduced content of nickel and/or cobalt.

Dwg.0/0

FILE SEGMENT: CPI  
 FIELD AVAILABILITY: AB; DCN  
 MANUAL CODES: CPI: E10-A07; E10-J02D; E11-D; E11-E; E11-F; E11-F02;  
 E11-F03; E11-F07A; E11-Q02; E35; H04-A01; H04-A02;  
 H04-A03; H04-F02A; J04-E04; N02; N06-C; N06-C08;  
 N07-B; N07-C; N07-D02; N07-D03; N07-D08A; N07-L01D;  
 N07-L02

L118 ANSWER 43 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2004-479748 [45] WPIDS  
 DOC. NO. CPI: C2004-178539



TITLE: Fischer-Tropsch catalyst for slurry bubble column reactor or fixed bed reactor, contains iron, silver, **manganese** and/or zinc, first promoter(s), second promoter(s), and structural promoter(s).

DERWENT CLASS: E19 H04

INVENTOR(S): ESPINOZA, R L; JOTHIMURUGESAN, K; KANDASWAMY, J

PATENT ASSIGNEE(S): (CONO) CONOCO INC; (CONO) CONOCOPHILLIPS CO

COUNTRY COUNT: 107

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
US 2004122115	A1	20040624	(200445)*		15	C07C027-06	
WO 2004058387	A2	20040715	(200446)	EN		B01J000-00	
RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE							
LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW							
W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE							
DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG							
KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM							
PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG UZ							
VC VN YU ZA ZM ZW							
AU 2003297154	A1	20040722	(200476)			C07C027-06	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 2004122115	A1	US 2002-324419	20021220
WO 2004058387	A2	WO 2003-US39966	20031216
AU 2003297154	A1	AU 2003-297154	20031216

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003297154	A1 Based on	WO 2004058387

PRIORITY APPLN. INFO: US 2002-324419 20021220

INT. PATENT CLASSIF.:

MAIN: B01J000-00; C07C027-06

## BASIC ABSTRACT:

US2004122115 A UPAB: 20040716

NOVELTY - A Fischer-Tropsch **catalyst** comprises **iron**; silver; optionally, **manganese** and/or zinc; first promoter(s) from sodium, lithium, potassium, rubidium, and/or cesium; optionally; second promoter(s) from calcium, magnesium, boron, and/or **aluminum**; and structural **promoter**(s).

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(a) a method of making a Fischer-Tropsch **catalyst**, comprising precipitating **iron** compound(s), optionally silver compound(s), optionally **manganese** compound(s) and optionally zinc compound(s) from a suitable solution and under suitable conditions to provide a precipitate; optionally, washing the precipitate to provide a clean precipitate; adding first promoter compound(s) to a slurry comprising the clean precipitate; optionally, adding second promoter compound(s) to a slurry comprising the clean precipitate; adding structural promoter compound(s) to the slurry comprising the clean precipitate to provide a precursor slurry; spray-drying the precursor slurry to provide catalyst precursor particles; calcining the catalyst precursor particles under suitable conditions to provide a calcined

pre-catalyst; optionally, impregnating the calcined pre-catalyst with a compound comprising silver, sodium, lithium, potassium, rubidium and/or cesium to provide the catalyst; drying the catalyst under suitable conditions to provide a dry catalyst; calcining the dry catalyst under suitable conditions to provide the catalyst; and optionally, reducing the catalyst under conditions suitable for providing the reduced catalyst; and

(b) a process of producing hydrocarbons, comprising contacting a reactant gas mixture comprising synthesis gas with the Fischer-Tropsch catalyst under suitable conditions and in a suitable reactor.

USE - For a slurry bubble column reactor or a fixed bed reactor.  
(Claimed)

ADVANTAGE - The inventive catalyst has a low water-gas shift activity, and high selectivity and productivity toward a hydrocarbon wax.  
Dwg.0/0

FILE SEGMENT: CPI  
FIELD AVAILABILITY: AB; DCN  
MANUAL CODES: CPI: E10-J02D3; E11-F02; H04-E05; H04-F02E; N01-A; N01-B;  
N01-C02; N01-C03; N01-D01; N01-D02; N02-A01;  
N02-E03; N03-B; N03-E; N03-F; N06-E01; N07-D02B

L118 ANSWER 44 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2004-497411 [47] WPIDS  
DOC. NO. CPI: C2004-184270  
TITLE: Making of iron promoted **vanadium** antimony oxide catalyst for the ammoxidation of propane to acrylonitrile, involves the use of iron containing compound having specified surface area.  
DERWENT CLASS: A41 E16 J04  
INVENTOR(S): BARTEK, J P; BRAZDIL, J F; TRAIL, S S  
PATENT ASSIGNEE(S): (BART-I) BARTEK J P; (BRAZ-I) BRAZDIL J F; (TRAI-I) TRAIL S S; (STAH) STANDARD OIL CO OHIO  
COUNTRY COUNT: 107  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
US 2004102642	A1	20040527	(200447)*		11	B01J023-74<--	
WO 2004050237	A1	20040617	(200447)	EN		B01J023-847	
RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE							
LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW							
W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE							
DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG							
KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM							
PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US							
UZ VC VN YU ZA ZM ZW							
AU 2003302599	A1	20040623	(200472)			B01J023-847	
US 6864384	B2	20050308	(200518)			C07C253-18	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 2004102642	A1	US 2002-306017	20021127
WO 2004050237	A1	WO 2003-US35568	20031107
AU 2003302599	A1	AU 2003-302599	20031107
US 6864384	B2	US 2002-306017	20021127

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
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 AU 2003302599 A1 Based on WO 2004050237

PRIORITY APPLN. INFO: US 2002-306017 20021127

INT. PATENT CLASSIF.:

MAIN: B01J023-74; B01J023-847; C07C253-18  
 SECONDARY: B01J023-745; B01J023-887; B01J035-00;  
 C07C051-265; C07C253-00; C07C253-24

BASIC ABSTRACT:

US2004102642 A UPAB: 20040723

NOVELTY - An iron promoted **vanadium** antimony oxide catalyst is made by using an iron containing compound having Brunauer-Emmett-Teller (BET) surface area of greater than 120 m<sup>2</sup>/g. It has an atomic ratio of iron to **vanadium** of greater than 0.2.

USE - For making an iron promoted **vanadium** antimony oxide catalyst useful in the ammoxidation of propane to acrylonitrile (claimed). The catalyst is also useful in processes for the ammoxidation of 3-5C paraffinic hydrocarbon to its corresponding alpha - beta -unsaturated nitrile, the ammoxidation of propylene with ammonia (NH<sub>3</sub>) and oxygen to acrylonitrile, the ammoxidation of methylpyridine with NH<sub>3</sub> and oxygen to make cyanopyridine, the ammoxidation of m-xylene with NH<sub>3</sub> and oxygen to make isophthalonitrile, or the oxidation of o-xylene to make phthalic anhydride.

ADVANTAGE - The inventive method can produce iron promoted **vanadium** antimony oxide catalyst having superior activity and performance.

Dwg.0/0

FILE SEGMENT: CPI  
 FIELD AVAILABILITY: AB; DCN  
 MANUAL CODES: CPI: A01-D04; E10-A15B; E31-G; E31-L; E31-M; E35;  
 J04-E04A; N06-E

L118 ANSWER 45 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN

ACCESSION NUMBER: 2004-071688 [07] WPIDS

DOC. NO. CPI: C2004-029664

TITLE: Preparation of supported catalyst or its precursor used for Fischer-Tropsch synthesis, involves converting liquid mixture of catalyst support and specific compounds to residue which is combusted in oxygen-containing atmosphere.

DERWENT CLASS: H04 J04

INVENTOR(S): GREEN, M L H; XIAO, T; GREEN, M

PATENT ASSIGNEE(S): (ISIS-N) ISIS INNOVATION LTD

COUNTRY COUNT: 105

PATENT INFORMATION:

PATENT NO KIND DATE WEEK LA PG MAIN IPC

WO 2004000456 A2 20031231 (200407)\* EN 39 B01J023-22

RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS  
 LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
 DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR  
 KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH  
 PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN  
 YU ZA ZM ZW

AU 2003236906 A1 20040106 (200447) B01J023-22

EP 1513613 A2 20050316 (200519) EN B01J023-22

R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV  
 MC MK NL PT RO SE SI SK TR

JP 2005529744 W 20051006 (200566) 25 B01J023-76  
 US 2005250863 A1 20051110 (200574) B01J021-18

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004000456	A2	WO 2003-GB2701	20030620
AU 2003236906	A1	AU 2003-236906	20030620
EP 1513613	A2	EP 2003-735825	20030620
		WO 2003-GB2701	20030620
JP 2005529744	W	WO 2003-GB2701	20030620
		JP 2004-515056	20030620
US 2005250863	A1	WO 2003-GB2701	20030620
		US 2004-519170	20041220

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003236906	A1 Based on	WO 2004000456
EP 1513613	A2 Based on	WO 2004000456
JP 2005529744	W Based on	WO 2004000456

PRIORITY APPLN. INFO: GB 2002-14383 20020621

## INT. PATENT CLASSIF.:

MAIN: B01J021-18; B01J023-22; B01J023-76  
 SECONDARY: B01J023-75; B01J023-755; **B01J023-78**;  
 B01J023-85; B01J023-88; B01J027-20; B01J027-22;  
 B01J029-76; B01J037-02; B01J037-14; C01B003-40;  
 C07C027-06; C10G002-00; C10G045-08

## BASIC ABSTRACT:

WO2004000456 A UPAB: 20040128

NOVELTY - A liquid mixture of a catalyst support or its precursor, metal-containing compound(s) (where the metal is **vanadium**, chromium, **manganese**, iron, cobalt nickel, copper, molybdenum or tungsten) and polar organic compound(s), is prepared. The mixture is converted to solid residue, which is then combusted in oxygen-containing atmosphere to partially convert organic compound to carbon and to form supported catalyst or its precursor.

DETAILED DESCRIPTION - A liquid mixture of a catalyst support or its precursor, metal-containing compound(s) (where metal is chosen from **vanadium**, chromium, **manganese**, iron, cobalt nickel, copper, molybdenum and tungsten) and polar organic compound(s) which acts as solvent for metal-containing compound, is prepared. The prepared liquid mixture contains 0-20 weight% of water. The mixture is then converted to paste or solid residue, which is then combusted in an oxygen-containing atmosphere to partially convert organic compound to carbon and to form supported catalyst or catalyst precursor.

INDEPENDENT CLAIMS are also included for the following:

(1) Fischer-Tropsch synthesis, hydrotreating, hydrocarbon partial oxidation, steam reforming or carbon dioxide reforming reaction, using supported catalyst or its precursor;

(2) a Fischer-Tropsch synthesis catalyst or its precursor; and

(3) a steam-reforming catalyst or its precursor.

USE - Used for preparing a supported catalyst or its precursor used in Fischer-Tropsch synthesis, hydrotreating reaction (e.g. hydroisomerization reaction), hydrocarbon partial oxidation, steam reforming or carbon dioxide reforming reaction (claimed) and partial oxidation of methane (POM) for producing syngas.

ADVANTAGE - The process effectively provides a supported catalyst or catalyst precursor used in chemical reactions, including Fischer-Tropsch synthesis and steam reforming reactions.

Dwg.0/0

FILE SEGMENT: CPI  
 FIELD AVAILABILITY: AB  
 MANUAL CODES: CPI: H04-E04; H04-E05; H04-E11; H04-F02E; J04-E04;  
 N06-E01

L118 ANSWER 46 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2003-568966 [53] WPIDS  
 DOC. NO. CPI: C2003-153384  
 TITLE: Iron-based Fischer-Tropsch catalyst for synthesis gas,  
 e.g. carbon monoxide and hydrogen, to alcohols, olefins,  
 or paraffins, comprises ferrihydrite, and alumina.  
 A41 E17 E33 H04  
 DERWENT CLASS:  
 INVENTOR(S): DLAMINI, H T; GOVENDER, N; VAN ZYL, A J; VISAGIE, J L  
 PATENT ASSIGNEE(S): (SASO-N) SASOL TECHNOLOGY PTY LTD  
 COUNTRY COUNT: 102  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
WO 2003043734	A1	20030530	(200353)*	EN	18	B01J023-745	
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW							
AU 2002347460	A1	20030610	(200419)			B01J023-745	
CN 1589176	A	20050302	(200537)			B01J023-745	

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003043734	A1	WO 2002-IB4831	20021120
AU 2002347460	A1	AU 2002-347460	20021120
CN 1589176	A	CN 2002-823232	20021120

#### FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002347460	A1 Based on	WO 2003043734

PRIORITY APPLN. INFO: US 2001-332004P 20011123; ZA  
 2001-9629 20011122

#### INT. PATENT CLASSIF.:

MAIN: B01J023-745  
 SECONDARY: B01J023-78; B01J023-788; B01J023-84; B01J023-844

#### BASIC ABSTRACT:

WO2003043734 A UPAB: 20030820  
 NOVELTY - An iron-based Fischer-Tropsch catalyst comprises ferrihydrite as main iron phase, and alumina as a structural promoter.  
 DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a process for preparing the above iron-based catalyst precursor by co-precipitating an alumina together with a main iron phase,

which is a ferrihydrite.

USE - The catalyst is used in the conversion of synthesis gas, e.g. carbon monoxide and hydrogen, to alcohols, olefins, or paraffins, by reacting the synthesis gas in the presence of the catalyst (claimed).

ADVANTAGE - The inventive catalyst has increased activity and selectivity towards alcohols and olefins, thus providing significant yield.

Dwg.0/0

FILE SEGMENT: CPI  
 FIELD AVAILABILITY: AB; DCN  
 MANUAL CODES: CPI: A01-E13; E10-E04F; E10-J02C3; E10-J02D; E34-E;  
 E35-A; E35-C; E35-U05; E35-W; E35-X; H04-E05;  
 H04-F01; H04-F02E; N01-C; N02-A; N02-C; N02-D;  
 N03-E; N03-F; N06-C06; N06-E01

L118 ANSWER 47 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2003-297909 [29] WPIDS  
 DOC. NO. CPI: C2003-077453  
 TITLE: Catalyst for extensive oxidation of organics and carbon  
 monoxide in gas emissions and method of their  
 preparation.  
 DERWENT CLASS: E36 J01 J04  
 INVENTOR(S): BORISOVA, T V; CHUMACHENKO, V A; LYUBUSHKIN, V A; MULINA,  
 T V  
 PATENT ASSIGNEE(S): (KATA-R) KATALIZATOR STOCK CO  
 COUNTRY COUNT: 1  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
RU 2199387	C1	20030227	(200329)*			B01J023-86	

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
RU 2199387	C1	RU 2001-113653	20010523

PRIORITY APPLN. INFO: RU 2001-113653 20010523

INT. PATENT CLASSIF.:

MAIN: B01J023-86

SECONDARY: B01D053-94; B01J023-78; B01J037-02; B01J037-04

#### BASIC ABSTRACT:

RU 2199387 C UPAB: 20030505

NOVELTY - Alumina-based catalyst contains (on conversion to oxides) 2-15% chromium oxide, 2-15% copper oxide, at least one additional element selected from alkali and alkali-earth metals, **silicon**, iron, magnesium, **titanium**, **zirconium**, and cerium in amounts from 0.01 to 45% and 2 to 15% of **promoter**: at least one compound of metal from following group: magnesium, nickel, **manganese**, cobalt, iron, and **vanadium**.

DETAILED DESCRIPTION - The catalyst is prepared by: (1) chromium and copper compounds, **aluminum** hydroxide, additional compound, and **promoter** are mixed and resulting mixture is molded, dried, and calcined; (2) alumina carrier bearing and additional compound is impregnated with solution containing chromium and copper compounds and **promoter**, dried, and calcined.

USE - Oxidation catalysts.

ADVANTAGE - Enhanced catalytic activity in oxidation reactions,

especially in presence of sulfur compounds, and increased mechanical strength.

Dwg.1/1

FILE SEGMENT: CPI  
 FIELD AVAILABILITY: AB; GI  
 MANUAL CODES: CPI: E11-Q02; E31-N05B; J01-E02D; J04-E01; J04-E04;  
 N01-C02; N02; N03; N06-E01; N07-C

L118 ANSWER 48 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2002-636790 [68] WPIDS  
 CROSS REFERENCE: 2002-636620 [68]; 2002-636791 [68]; 2002-636792 [68];  
 2002-666997 [71]; 2002-707098 [76]

DOC. NO. CPI: C2002-179786  
 TITLE: Preparation of hydrocarbon fuel product(s) from  
 hydrocarbon stream, involves hydrocracking hydrocarbon  
 stream comprising specific carbon atoms, at preset  
 conversion and separating product stream into preset  
 fractions.

DERWENT CLASS: H04 H06  
 INVENTOR(S): HOEK, A; SENDEN, M M G  
 PATENT ASSIGNEE(S): (SHEL) SHELL INT RES MIJ BV; (HOEK-I) HOEK A; (SEND-I)  
 SENDEN M M G; (SHEL) SHELL OIL CO

COUNTRY COUNT: 101  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
WO 2002070628	A2	20020912	(200268)*	EN	23	C10G065-04	
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW							
NO 2003003902	A	20031104	(200380)			C10G065-04	
KR 2003080077	A	20031010	(200413)			C10G065-04	
US 2004074810	A1	20040422	(200428)			C10G011-00	
EP 1412459	A2	20040428	(200429)	EN		C10G065-04	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR							
AU 2002256642	A1	20020919	(200433)			C10G065-04	
BR 2002007894	A	20040622	(200442)			C10G065-04	
ZA 2003006842	A	20040825	(200466)#		56	C10G000-00	
MX 2003007983	A1	20040101	(200471)			C10G065-04	
JP 2004536894	W	20041209	(200481)		42	C10G067-02	
US 6858127	B2	20050222	(200515)			C10G065-00	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002070628	A2	WO 2002-EP2336	20020301
NO 2003003902	A	WO 2002-EP2336	20020301
		NO 2003-3902	20030904
KR 2003080077	A	KR 2003-711689	20030905
US 2004074810	A1	WO 2002-EP2336	20020301
		US 2003-469843	20030904
EP 1412459	A2	EP 2002-726134	20020301
		WO 2002-EP2336	20020301

AU 2002256642	A1	AU 2002-256642	20020301
BR 2002007894	A	BR 2002-7894	20020301
		WO 2002-EP2336	20020301
ZA 2003006842	A	ZA 2003-6842	20030902
MX 2003007983	A1	WO 2002-EP2336	20020301
		MX 2003-7983	20030904
JP 2004536894	W	JP 2002-570656	20020301
		WO 2002-EP2336	20020301
US 6858127	B2	WO 2002-EP2336	20020301
		US 2003-469843	20030904

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1412459	A2 Based on	WO 2002070628
AU 2002256642	A1 Based on	WO 2002070628
BR 2002007894	A Based on	WO 2002072628
MX 2003007983	A1 Based on	WO 2002070628
JP 2004536894	W Based on	WO 2002070628
US 6858127	B2 Based on	WO 2002070628

PRIORITY APPLN. INFO: EP 2001-308293 20010928; EP  
 2001-400562 20010305; ZA  
 2003-6842 20030902

## INT. PATENT CLASSIF.:

MAIN: C10G000-00; C10G011-00; C10G065-00; C10G065-04;  
 C10G067-02

SECONDARY: C07C027-00; C10G002-00; C10G035-00; C10G045-64;  
 C10G047-00; C10G047-20; C10G065-10; C10G065-12

## BASIC ABSTRACT:

WO 200270628 A UPAB: 20050303

NOVELTY - Fischer-Tropsch hydrocarbon stream (FTHS) portion(s) is hydrocracked or hydroisomerized for preparing hydrocarbon fuel product(s). The product stream is separated into light fraction(s), fraction(s) boiling in the kerosene or diesel boiling range and heavy fraction boiling. FTHS comprises at least 35 weight% of compounds having 30C or more. The weight ratio of compounds having 60C or more and 30C or more in the stream is at least 0.2.

DETAILED DESCRIPTION - At least a portion of the FTHS is hydrocracked or hydroisomerized (I) at a conversion per pass of at most 80 wt% of the material boiling above 370 deg. C into material boiling below 370 deg. C. The product stream obtained is separated into light fraction(s) boiling below the kerosene or diesel boiling range (KDBR), fraction(s) boiling in the KDBR and a heavy fraction boiling above the KDBR. The larger portion of the heavy fraction is hydrocracked or hydroisomerized (II) at a conversion per pass of at most 80 weight% of material boiling above 370 deg. C into material boiling below 370 deg. C. The product stream obtained is separated into light fraction(s) boiling below the KDBR, fraction(s) boiling in the KDBR and a heavy fraction boiling above the KDBR. The larger portion of the heavy fraction obtained in the hydrocracking or hydroisomerization process (II) is hydrocracked or hydroisomerized in the (I) or (II) hydrocracking process. The FTHS comprises at least 35 weight% of compounds having 30C or more based on total amount of hydrocarbons in the FTHS. The weight ratio between compounds having 60C or more and compounds having 30C or more in the stream is at least 0.2. Hydrocarbon fuel product(s) boiling in the KDBR is prepared from a stream of hydrocarbons produced in the Fischer-Tropsch process. The Fischer-Tropsch process involves converting synthesis gas converted into liquid hydrocarbon and at least a portion of hydrocarbons boiling above KDBR.



An INDEPENDENT CLAIM is included for a hydrocarbon product boiling in the KDBR obtained by the hydrocarbon fuel product preparation method.

USE - For preparing hydrocarbon fuel product(s) boiling in kerosene/diesel range.

ADVANTAGE - The middle distillate obtained has good cold flow properties. The overall conversion including carbon conversion and thermal conversion of the process is high. The hydrocarbon fuel products boils in the diesel range and in the kerosene range. The heavy FTHS containing the components boiling in KDBR improves the cold flow properties.

Dwg.0/0

FILE SEGMENT: CPI  
FIELD AVAILABILITY: AB  
MANUAL CODES: CPI: H04-B03; H04-E11; H04-F02B; H04-F02E; H06-B02;  
H06-B04

L118 ANSWER 49 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2001-328777 [34] WPIDS  
DOC. NO. CPI: C2001-100867  
TITLE: Sorbent composition, for removing thiophenic sulfur compounds from streams of cracked-gasolines and diesel fuels, comprises zinc titanate support, metal, metal oxide or metal oxide precursor **promoter**.  
DERWENT CLASS: H04  
INVENTOR(S): KHARE, G P  
PATENT ASSIGNEE(S): (PHIP) PHILLIPS PETROLEUM CO  
COUNTRY COUNT: 95  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
WO 2001032805	A1	20010510	(200134)*	EN	29	C10G029-02	
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ							
NL OA PT SD SE SL SZ TZ UG ZW							
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM							
DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC							
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE							
SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW							
AU 2001021147	A	20010514	(200149)			C10G029-02	
US 6338794	B1	20020115	(200208)			C10G029-04	
US 2002043484	A1	20020418	(200228)			C10G029-00	
BR 2000015428	A	20020716	(200255)			C10G029-02	
NO 2002002075	A	20020701	(200255)			C10G000-00	
EP 1235887	A1	20020904	(200266)	EN		C10G029-02	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT							
RO SE SI							
KR 2002080331	A	20021023	(200317)			B01J020-06	
CN 1382201	A	20021127	(200322)			C10G029-02	
JP 2003513772	W	20030415	(200328)		37	B01J020-06	
MX 2002004332	A1	20021201	(200377)			B01J023-06	
NZ 518237	A	20031031	(200380)			C10G029-02	
AU 778467	B2	20041209	(200508)			C10G029-02	

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001032805	A1	WO 2000-US41270	20001018
AU 2001021147	A	AU 2001-21147	20001018
US 6338794	B1	US 1999-431370	19991101
US 2002043484	A1 Div ex	US 1999-431370	19991101

BR 2000015428	A	US 2001-981595	20011017
		BR 2000-15428	20001018
		WO 2000-US41270	20001018
NO 2002002075	A	WO 2000-US41270	20001018
		NO 2002-2075	20020430
EP 1235887	A1	EP 2000-984545	20001018
		WO 2000-US41270	20001018
KR 2002080331	A	KR 2002-705407	20020426
CN 1382201	A	CN 2000-814798	20001018
JP 2003513772	W	WO 2000-US41270	20001018
		JP 2001-535490	20001018
MX 2002004332	A1	WO 2000-US41270	20001018
		MX 2002-4332	20020430
NZ 518237	A	NZ 2000-518237	20001018
		WO 2000-US41270	20001018
AU 778467	B2	AU 2001-21147	20001018

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001021147	A Based on	WO 2001032805
BR 2000015428	A Based on	WO 2001032805
EP 1235887	A1 Based on	WO 2001032805
JP 2003513772	W Based on	WO 2001032805
MX 2002004332	A1 Based on	WO 2001032805
NZ 518237	A Based on	WO 2001032805
AU 778467	B2 Previous Publ. Based on	AU 2001021147 WO 2001032805

PRIORITY APPLN. INFO: US 1999-431370 19991101; US  
2001-981595 20011017

## INT. PATENT CLASSIF.:

MAIN: B01J020-06; B01J023-06; C10G000-00; C10G029-00;  
C10G029-02; C10G029-04

SECONDARY: B01D015-00; B01J020-28; B01J020-30; B01J020-34;  
B01J023-16; B01J023-22; B01J023-24; B01J023-28;  
B01J023-30; B01J023-32; B01J023-34; B01J023-50;  
B01J023-58; B01J023-70; **B01J023-74**; B01J023-75;  
B01J023-755; B01J023-80; C07C007-12; C10G025-00;  
C10G029-06; C10G029-08; C10G029-16

## BASIC ABSTRACT:

WO 200132805 A UPAB: 20010620

NOVELTY - A sorbent composition comprises zinc titanate support; and metal, metal oxide or metal oxide precursor **promoter**. The metal is cobalt, nickel, iron, **manganese**, copper, molybdenum, tungsten, silver, tin, and/or **vanadium**. The **promoter** metal is in reduced valence state for removal of sulfur from stream of cracked-gasoline or diesel fuel contacted with the composition under desulfurization conditions.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for;

(1) A process of producing the sorbent composition comprising impregnating a solid particulate of zinc titanate with metal, metal oxide or metal oxide precursor **promoter**; drying the resulting impregnated solid particulate composition; calcining the dried particulate composition; and reducing the calcined particulate product with a reducing agent to produce a sorbent composition; and

(2) A process for removing sulfur from a stream of cracked-gasoline or diesel fuel comprising contacting the stream with a sorbent composition; separating the resulting desulfurized fluid stream from the

sulfurized sorbent; regenerating a portion of the separated sulfurized sorbent in a regeneration zone to remove a portion of the sulfur absorbed; reducing the resulting desulfurized sorbent in an activation zone to provide a reduced valence metal **promoter** content; and returning a portion of the resulting desulfurized, reduced sorbent to the desulfurization zone.

USE - For removal of thiophenic sulfur compounds from fluid streams of cracked-gasolines and diesel fuels.

ADVANTAGE - The composition removes sulfur compounds without adverse effect on the olefin content of the streams. It avoids reduction of octane values of the treated stream, and results in reduction of the sulfur content of the resulting treated fluid stream.

Dwg. 0/0

FILE SEGMENT: CPI  
FIELD AVAILABILITY: AB  
MANUAL CODES: CPI: H04-A01

L118 ANSWER 50 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2001-353964 [37] WPIDS  
CROSS REFERENCE: 2000-246501 [21]; 2000-246502 [21]; 2000-246503 [21];  
2003-810254 [76]  
DOC. NO. CPI: C2001-109625  
TITLE: Fischer-Tropsch catalyst for producing hydrocarbons,  
comprises reduced aerogel or xerogel formed from  
destabilization of colloidal mixture comprising  
catalytically active metal and colloidal sol of matrix  
metal.  
DERWENT CLASS: E36 H04  
INVENTOR(S): KOURTAKIS, K; MANZER, L E  
PATENT ASSIGNEE(S): (CONO) CONOCO INC  
COUNTRY COUNT: 1  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
US 6235677	B1	20010522	(200137)*		9	B01J021-08	

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 6235677	B1 Provisional	US 1998-97192P	19980820
	Provisional	US 1998-97193P	19980820
	Provisional	US 1998-97194P	19980820
		US 1999-377008	19990818

PRIORITY APPLN. INFO: US 1999-377008 19990818; US  
1998-97192P 19980820; US  
1998-97193P 19980820; US  
1998-97194P 19980820

#### INT. PATENT CLASSIF.:

MAIN: B01J021-08  
SECONDARY: B01J021-04; B01J023-10; B01J023-40; **B01J023-74**

#### BASIC ABSTRACT:

US 6235677 B UPAB: 20031125  
NOVELTY - A Fischer-Tropsch catalyst comprises a reduced aerogel or xerogel formed from the destabilization of a colloidal mixture comprising a catalytically active metal from iron, cobalt, nickel, ruthenium and/or **aluminum**, and a colloidal sol of a matrix metal from cerium,

titanium, zirconium, aluminum and/or silicon.

DETAILED DESCRIPTION - A Fischer-Tropsch catalyst comprises a reduced aerogel or xerogel formed from the destabilization of a colloidal mixture comprising a catalytically active metal from iron, cobalt, nickel, ruthenium and/or aluminum, and a colloidal sol of a matrix metal from cerium, titanium, zirconium, aluminum and/or silicon. The active metal comprises greater than 0.1 mole fraction of the matrix metal and catalyst metal combined.

An INDEPENDENT CLAIM is also included for a method of preparing the Fischer-Tropsch catalyst with a catalytically active metal content of greater than 0.1 mole fraction in the final composition of the matrix metal and catalyst metal combined.

USE - For producing hydrocarbons.

ADVANTAGE - The inventive catalyst provides high 5C+ hydrocarbon selectivities to maximize the value of the hydrocarbons produced, and enhances the process economics.

Dwg.0/0

FILE SEGMENT: CPI  
FIELD AVAILABILITY: AB; DCN  
MANUAL CODES: CPI: E10-J02B3; E10-J02C3; E10-J02D3; H04-E05; H04-F02E; N01-C01B; N01-C02; N01-D02; N02; N03; N06-E; N06-F

L118 ANSWER 51 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
ACCESSION NUMBER: 2000-655432 [63] WPIDS  
CROSS REFERENCE: 1996-299913 [30]; 1998-321667 [28]; 1998-494849 [42]; 1998-494850 [42]  
DOC. NO. CPI: C2000-198248  
TITLE: Preparation of aliphatic alpha, omega-aminonitriles, involves partial hydrogenation of aliphatic alpha, omega-dinitriles at elevated temperature and superatmospheric pressure in presence of solvent and catalyst.  
DERWENT CLASS: A41 E16  
INVENTOR(S): EBEL, K; FISCHER, R; FLICK, K; HARDER, W; MELDER, J; REHFINGER, A; SCHNURR, W; WITZEL, T  
PATENT ASSIGNEE(S): (BADI) BASF AG  
COUNTRY COUNT: 1  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
US 6114567	A	20000905	(200063)*		8	C07C253-30	

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 6114567	A Div ex	US 1995-375573	19950118
		US 1998-122102	19980724

#### FILING DETAILS:

PATENT NO	KIND	PATENT NO
US 6114567	A Div ex	US 5527946

PRIORITY APPLN. INFO: DE 1994-4446893 19941227  
INT. PATENT CLASSIF.:  
MAIN: C07C253-30

## BASIC ABSTRACT:

US 6114567 A UPAB: 20001205

NOVELTY - Aliphatic alpha , omega -dinitriles is partially hydrogenated in a suspension containing 5-20 weight% of the catalyst based on the amount of dinitrile in a fixed bed reactor at 30-90 deg. C with a pressure of 3-20 MPa. The suspension comprises solvent, catalyst comprising specific metal, promoter and trace component.

DETAILED DESCRIPTION - Preparation of aliphatic alpha, omega -aminonitriles involves partial hydrogenation of aliphatic alpha, omega -dinitriles with a pressure of 3-20 MPa and at 30-90 deg. C in a suspension containing:

- (a) 5-20 weight% (weight%) of catalyst based on the amount of dinitrile;
- (b) promoter (0.1-5 weight%);
- (c) 0-5 weight% of trace element based on catalyst.

The catalyst is iron (Fe), nickel (Ni), ruthenium (Ru) or rhodium (Rh). The promoter is zinc, cadmium, lead, aluminum, tin, arsenic or antimony, and a trace component is alkali metal or an alkaline earth metal. When the promoter is titanium, manganese, chromium or molybdenum the catalyst do not contain Fe, cobalt, Ru or Rh. When the catalyst comprises Ru, Rh or Ni the addition of the promoter can be neglected. The suspension comprising catalyst, promoter and trace element in aqueous solution is precipitated and extruded to form a pellet. The pellet is dried at 80-150 deg. C, calcined at 150-1000 deg. C in gaseous stream comprising air or nitrogen to form calcine product. The calcined product is passivated at 20-80 deg. C in presence of oxygen and nitrogen mixture. Subsequently the passivated product is activated in reducing atmosphere for 2-24 hours at 200-500 deg. C.

USE - For preparing alpha , omega -aminonitriles.

ADVANTAGE - The catalyst used in the process has a longer life. The selectivity of alpha , omega -aminonitriles is enhanced.

Dwg.0/0

FILE SEGMENT: CPI  
 FIELD AVAILABILITY: AB; DCN  
 MANUAL CODES: CPI: A01-F; E10-A15E; N01-A; N01-B; N01-C; N02-A01;  
 N02-C01; N02-E01; N02-E02; N03-F; N03-G; N03-H

L118 ANSWER 52 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 2000-207102 [19] WPIDS  
 DOC. NO. CPI: C2000-064114  
 TITLE: Simultaneous production of 6-aminocapronitrile and hexamethylene diamine, used in nylon production, uses limited sump temperature in recovery of adipodinitrile for recycling to hydrogenation.

DERWENT CLASS: A41 E16  
 INVENTOR(S): ACHHAMMER, G; ANSMANN, A; BASSLER, P; FISCHER, R; LUYKEN, H; MELDER, J; MERGER, M; OHLBACH, F; REHFINGER, A; VOIT, G

PATENT ASSIGNEE(S): (BADI) BASF AG  
 COUNTRY COUNT: 55  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
DE 19839338	A1	20000302	(200019)*		8	C07C255-24	
WO 2000012459	A1	20000309	(200020)	GE		C07C209-48	
RW: AT BE CH CY DE DK EA ES FI FR GB GR IE IT LU MC NL PT SE							
W: AE AL AU BG BR BY CA CN CZ GE HR HU ID IL IN JP KR KZ LT LV MK MX							
NO NZ PL RO RU SG SI SK TR UA US ZA							
AU 9956223	A	20000321	(200031)			C07C209-48	

BR 9913250 A 20010522 (200132) C07C209-48  
 EP 1107941 A1 20010620 (200135) GE C07C209-48  
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
 RO SE SI  
 CN 1315935 A 20011003 (200205) C07C209-48  
 KR 2001073035 A 20010731 (200209) C07C209-48  
 MX 2001001568 A1 20010501 (200227) C07C209-48  
 EP 1107941 B1 20020717 (200254) GE C07C209-48  
 R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE  
 DE 59902062 G 20020822 (200263) C07C209-48  
 JP 2002523482 W 20020730 (200264) 25 C07C209-48  
 US 6462220 B1 20021008 (200269) C07C255-25  
 ES 2180323 T3 20030201 (200322) C07C209-48  
 TW 521068 A 20030221 (200364) C07C209-48  
 MX 217994 B 20031208 (200470) C07C209-48

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19839338	A1	DE 1998-1039338	19980828
WO 2000012459	A1	WO 1999-EP6011	19990817
AU 9956223	A	AU 1999-56223	19990817
BR 9913250	A	BR 1999-13250	19990817
		WO 1999-EP6011	19990817
EP 1107941	A1	EP 1999-942875	19990817
		WO 1999-EP6011	19990817
CN 1315935	A	CN 1999-810376	19990817
KR 2001073035	A	KR 2001-702523	20010227
MX 2001001568	A1	MX 2001-1568	20010212
EP 1107941	B1	EP 1999-942875	19990817
		WO 1999-EP6011	19990817
DE 59902062	G	DE 1999-502062	19990817
		EP 1999-942875	19990817
		WO 1999-EP6011	19990817
JP 2002523482	W	WO 1999-EP6011	19990817
		JP 2000-567494	19990817
US 6462220	B1	WO 1999-EP6011	19990817
		US 2001-763710	20010226
ES 2180323	T3	EP 1999-942875	19990817
TW 521068	A	TW 1999-114617	19990826
MX 217994	B	WO 1999-EP6011	19990817
		MX 2001-1568	20010212

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9956223	A Based on	WO 2000012459
BR 9913250	A Based on	WO 2000012459
EP 1107941	A1 Based on	WO 2000012459
EP 1107941	B1 Based on	WO 2000012459
DE 59902062	G Based on	EP 1107941
	Based on	WO 2000012459
JP 2002523482	W Based on	WO 2000012459
US 6462220	B1 Based on	WO 2000012459
ES 2180323	T3 Based on	EP 1107941
MX 217994	B Based on	WO 2000012459

PRIORITY APPLN. INFO: DE 1998-19839338 19980828

## INT. PATENT CLASSIF.:

MAIN: C07C209-48; C07C255-24; C07C255-25  
 SECONDARY: C07C209-84; C07C211-12; C07C253-30; C07C253-34  
 ADDITIONAL: C07B061-00

## BASIC ABSTRACT:

DE 19839338 A UPAB: 20021105

NOVELTY - In simultaneous production of 6-aminocapronitrile (ACN) and hexamethylene diamine (HMD) by (a) hydrogenation of adipodinitrile (ADN) in the presence of a catalyst based on a group VIII element and multistage distillation of the resultant mixture containing ACN, HMD, ADN and high-boiling substances (HS) to separate (b) HMD and then either (c1) ACN and (d1) ADN or (c2) simultaneously ACN and ADN in separate fractions, the sump temperature in (d1) or (c2) is below 185 deg. C.

USE - ACN is an intermediate for caprolactam, which is the starting material for nylon 6, and HMD is one of the 2 starting materials for nylon 6.6.

ADVANTAGE - In existing methods, the recycled ADN contains undesirable by-products, especially amines such as 1-amino-2-cyanocyclopentene (ACCPE) and bis-hexamethylene triamine (BHMTA), which reduce the yield. These cannot be separated from ADN by distillation, as they form (quasi)azeotropes. When recycled, ACCPE forms 2-aminomethylcyclopentylamine (AMCPA), which contaminates the HMD and is very difficult to separate. The present process avoids these drawbacks. It is simple and economical and also increases the life of the catalyst. The ADN recovered is very pure and contains very little ACCPE.

DESCRIPTION OF DRAWING(S) - The drawing shows the flow scheme using 2 distillation columns.

Reactor with fixed catalyst in sump or trickling operation or suspension catalyst R1

Distillation column K1, K2

Dwg.1/2

FILE SEGMENT: CPI  
 FIELD AVAILABILITY: AB; GI; DCN  
 MANUAL CODES: CPI: A01-E05; E10-A15A; E10-A15E; E10-B01E; E11-D; E11-Q01; N02; N06-C

L118 ANSWER 53 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 1999-591196 [50] WPIDS  
 CROSS REFERENCE: 2004-505057 [48]  
 DOC. NO. CPI: C1999-172655  
 TITLE: Dehydrogenation catalyst for alkyl aromatic feed for production of alkenylaromatics.  
 DERWENT CLASS: A41 E14 E31 H04 J04  
 INVENTOR(S): MISHIMA, Y; ROKICKI, A; SHINYAMA, K; SMITH, D J; WILLIAMS, D L; SMITH, D; WILLIAMS, D  
 PATENT ASSIGNEE(S): (UNCA-N) UNITED CATALYSTS INC; (SUDC-N) SUD CHEM INC; (SUDC) SUD-CHEMIE INC; (SUDC) SUD-CHEMIE NISSAN CATALYSTS INC; (SUDC) SUD-CHEMIE INC; (SUDC-N) SUD CHEM INC FORMERLY UNITED CATALYSTS; (NISS-N) NISSAN GIRDLER CATALYSTS CO LTD; (NISS-N) NISSAN GIRDLER CATALYSTS CO  
 COUNTRY COUNT: 84  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
WO 9949968	A1	19991007	(199950)*	EN	47	B01J023-89	
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL							
OA PT SD SE SL SZ UG ZW							
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE							
GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG							

MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG  
 UZ VN YU ZW  
 AU 9932054 A 19991018 (200010)  
 US 6177602 B1 20010123 (200107) C07C002-64  
 EP 1071508 A1 20010131 (200108) EN B01J023-89  
 R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE  
 US 6191065 B1 20010220 (200112) B01J023-00  
 US 6242379 B1 20010605 (200133) B01J021-08  
 TW 426546 A 20010321 (200151) B01J023-76  
 US 2001020118 A1 20010906 (200154) C07C002-66  
 CN 1298323 A 20010606 (200157) B01J023-89  
 CZ 2000003590 A3 20010815 (200157) B01J023-89  
 KR 2001052231 A 20010625 (200173) B01J023-89  
 JP 2002509790 W 20020402 (200225) 40 B01J023-89  
 US 6465704 B2 20021015 (200271) C07C002-64

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9949968	A1	WO 1999-US6603	19990325
AU 9932054	A	AU 1999-32054	19990325
US 6177602	B1 Div ex	US 1998-53234	19980401
		US 1998-143637	19980828
EP 1071508	A1	EP 1999-914152	19990325
		WO 1999-US6603	19990325
US 6191065	B1 CIP of	US 1998-53234	19980401
		US 1999-237408	19990126
US 6242379	B1	US 1998-53234	19980401
TW 426546	A	TW 1999-105205	19990416
US 2001020118	A1 Div ex	US 1998-53234	19980401
		US 2001-817399	20010326
CN 1298323	A	CN 1999-805405	19990325
CZ 2000003590	A3	WO 1999-US6603	19990325
		CZ 2000-3590	19990325
KR 2001052231	A	KR 2000-710941	20000930
JP 2002509790	W	WO 1999-US6603	19990325
		JP 2000-540927	19990325
US 6465704	B2 Div ex	US 1998-53234	19980401
		US 2001-817399	20010326

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9932054	A Based on	WO 9949968
EP 1071508	A1 Based on	WO 9949968
US 2001020118	A1 Div ex	US 6242379
CZ 2000003590	A3 Based on	WO 9949968
JP 2002509790	W Based on	WO 9949968
US 6465704	B2 Div ex	US 6242379

PRIORITY APPLN. INFO: US 1999-237408 19990126; US  
 1998-53234 19980401; US  
 1998-143637 19980828; US  
 2001-817399 20010326

## INT. PATENT CLASSIF.:

MAIN: B01J021-08; B01J023-00; B01J023-76; B01J023-89;  
 C07C002-64; C07C002-66  
 SECONDARY: B01J021-12; B01J021-14; B01J023-02; B01J023-40;



B01J023-60; B01J023-72; **B01J023-745**;  
**B01J023-78**; C07C002-72; C07C004-06; C07C005-333;  
 C07C015-46  
 C07B061-00

## ADDITIONAL:

## BASIC ABSTRACT:

WO 9949968 A UPAB: 20040728

NOVELTY - A noble metal **promoter** provide a catalyst with high selectivity and increased stability in the dehydrogenation of alkyl aromatics

DETAILED DESCRIPTION - Dehydrogenation catalyst for alkyl aromatic feed comprises:

- (a) 30-90 weight% iron compound, calculated as oxide,
- (b) 1-50 weight% alkali metal source, calculated as oxide and
- (c) 0.1-1000 ppm weight noble metal selected from elemental noble metals and/or noble metal compounds.

An INDEPENDENT CLAIM is included for the dehydrogenation of steam and alkyl aromatic feed stream using the above catalyst.

USE - For use in dehydrogenation of alkyl aromatics to alkenylaromatics.

Dwg.1/1

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB; GI; DCN

MANUAL CODES: CPI: A01-D03; E10-J02B3; E35-U02; H04-E03; H04-F02E;  
 J04-E04B; N01; N02; N03

L118 ANSWER 54 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN

ACCESSION NUMBER: 1999-528657 [45] WPIDS

DOC. NO. CPI: C1999-155620

TITLE: **Iron-based catalyst** for hydrogenation of alpha,omega-nitrile, especially adiponitrile to give 6-amino-capronitrile and/or 1,6-diamino-hexane.

DERWENT CLASS: A41 E16 J04

INVENTOR(S): ANSMANN, A; BASSLER, P; FISCHER, R; LUYKEN, H; MERGER, M;  
 OHLBACH, F; REHFINGER, A; VOIT, G; FISCHER, R H;  
 BABETALER, P

PATENT ASSIGNEE(S): (BADI) BASF AG; (ANSM-I) ANSMANN A; (BASS-I) BASSLER P;  
 (FISC-I) FISCHER R; (LUYK-I) LUYKEN H; (MERC-I) MERGER M;  
 (OHLB-I) OHLBACH F; (REHF-I) REHFINGER A; (VOIT-I) VOIT G;  
 (BABE-I) BABETALER P

COUNTRY COUNT: 52

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
DE 19809687	A1	19990909	(199945)*		7	B01J023-889	
WO 9944984	A1	19990910	(199945)	GE		C07C209-48	
RW: AT BE CH CY DE DK EA ES FI FR GB GR IE IT LU MC NL PT SE							
W: AL AU BG BR BY CA CN CZ GE HU ID IL IN JP KR KZ LT LV MK MX NO NZ							
PL RO RU SG SI SK TR UA US							
AU 9928356	A	19990920	(200007)			C07C209-48	
NO 2000004424	A	20000905	(200063)			C07C209-48	
BR 9908505	A	20001205	(200101)			C07C209-48	
CZ 2000003237	A3	20001213	(200103)			C07C209-48	
EP 1071653	A1	20010131	(200108)	GE		C07C209-48	
R: AT BE CH DE ES FI FR GB GR IE IT LI LT LU LV NL PT RO SE SI							
SK 2000001238	A3	20010312	(200126)			C07C209-48	
CN 1292776	A	20010425	(200143)			C07C209-48	
HU 2001001241	A2	20010828	(200157)			C07C209-48	
US 2001025119	A1	20010927	(200159)			C07C255-00	
US 6297394	B1	20011002	(200160)			C07C209-22	

KR 2001041635	A	20010525 (200168)	C07C209-48
MX 2000008228	A1	20010301 (200170)	B01J023-78<--
JP 2002505192	W	20020219 (200216)	22 B01J023-889
EP 1071653	B1	20030820 (200356)	GE C07C209-48
R: AT BE CH DE ES FI FR GB GR IE IT LI LT LU LV NL PT RO SE SI			
TW 518252	A	20030121 (200356)	B01J023-74<--
DE 59906684	G	20030925 (200371)	C07C209-48
ES 2207184	T3	20040516 (200434)	C07C209-48
US 2004181095	A1	20040916 (200461)	C07C002-00
MX 217357	B	20031104 (200468)	B01J023-78<--
CZ 294316	B6	20041110 (200476)	C07C209-48
NO 317588	B1	20041122 (200477)	C07C209-48
US 6852669	B2	20050208 (200511)	B01J023-74<--

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19809687	A1	DE 1998-1009687	19980306
WO 9944984	A1	WO 1999-EP1150	19990223
AU 9928356	A	AU 1999-28356	19990223
NO 2000004424	A	WO 1999-EP1150	19990223
		NO 2000-4424	20000905
BR 9908505	A	BR 1999-8505	19990223
		WO 1999-EP1150	19990223
CZ 2000003237	A3	WO 1999-EP1150	19990223
		CZ 2000-3237	19990223
EP 1071653	A1	EP 1999-908940	19990223
		WO 1999-EP1150	19990223
SK 2000001238	A3	WO 1999-EP1150	19990223
		SK 2000-1238	19990223
CN 1292776	A	CN 1999-803719	19990223
HU 2001001241	A2	WO 1999-EP1150	19990223
		HU 2001-1241	19990223
US 2001025119	A1 Div ex Div ex	WO 1999-EP1150	19990223
		US 2000-622773	20000823
		US 2001-851214	20010508
US 6297394	B1	WO 1999-EP1150	19990223
		US 2000-622773	20000823
KR 2001041635	A	KR 2000-709834	20000905
MX 2000008228	A1	MX 2000-8228	20000823
JP 2002505192	W	WO 1999-EP1150	19990223
		JP 2000-534529	19990223
EP 1071653	B1	EP 1999-908940	19990223
		WO 1999-EP1150	19990223
TW 518252	A	TW 1999-103356	19990305
DE 59906684	G	DE 1999-506684	19990223
		EP 1999-908940	19990223
		WO 1999-EP1150	19990223
ES 2207184	T3	EP 1999-908940	19990223
US 2004181095	A1 Div ex Div ex Div ex	WO 1999-EP1150	19990223
		US 2000-622773	20000823
		US 2001-851214	20010508
		US 2004-776544	20040212
MX 217357	B	WO 1999-EP1150	19990223
		MX 2000-8228	20000823
CZ 294316	B6	WO 1999-EP1150	19990223
		CZ 2000-3237	19990223
NO 317588	B1	WO 1999-EP1150	19990223
		NO 2000-4424	20000905

US 6852669	B2 Div ex	US 1999-622773	19990223
	Div ex	WO 1999-EP1150	19990223
		US 2001-851214	20010508

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9928356	A Based on	WO 9944984
BR 9908505	A Based on	WO 9944984
CZ 2000003237	A3 Based on	WO 9944984
EP 1071653	A1 Based on	WO 9944984
SK 2000001238	A3 Based on	WO 9944984
HU 2001001241	A2 Based on	WO 9944984
US 6297394	B1 Based on	WO 9944984
JP 2002505192	W Based on	WO 9944984
EP 1071653	B1 Based on	WO 9944984
DE 59906684	G Based on	EP 1071653
	Based on	WO 9944984
ES 2207184	T3 Based on	EP 1071653
US 2004181095	A1 Div ex	US 6297394
MX 217357	B Based on	WO 9944984
CZ 294316	B6 Previous Publ.	CZ 2000003237
	Based on	WO 9944984
NO 317588	B1 Previous Publ.	NO 2000004424
US 6852669	B2 Div ex	US 6297394

PRIORITY APPLN. INFO: DE 1998-19809687 19980306

## INT. PATENT CLASSIF.:

MAIN: B01J023-74; B01J023-78; B01J023-889;

C07C002-00; C07C209-22; C07C209-48; C07C255-00

SECONDARY: B01J021-08; B01J023-70; C07C211-09; C07C211-12;  
C07C253-10; C07C253-30; C07C255-04; C07C255-24;  
C07C255-30

ADDITIONAL: C07B061-00

## BASIC ABSTRACT:

DE 19809687 A UPAB: 19991103

NOVELTY - **Iron-based catalyst** material containing, in addition to (a) iron and/or iron compound(s), (b) 0.001-0.3 wt% **promoter** based on 2, 3, 4 or 5 elements selected from aluminium, **silicon, zirconium, titanium and vanadium**, (c) 0-0.3 wt% alkali and/or alkaline earth metal compound and (d) 0.001-1 wt% **manganese** (all based on weight of a).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a process for the hydrogenation of alpha , omega -dinitriles in presence of this catalyst material.

USE - As catalysts for the hydrogenation of alpha , omega -dinitriles (claimed). The preferred products (aminocapronitrile and hexamethylenediamine) are used especially for the production of polyamides 6 and 6.6.

ADVANTAGE - Catalyst material with a long service life, enabling the simple, economical hydrogenation of alpha , omega -dinitriles to amino-nitriles and diamines with high yield, high selectivity and minimal amounts of unwanted by-products.

Dwg.0/0

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB; DCN

MANUAL CODES: CPI: A01-E05; E10-A15E; E10-B01E; J04-E04; N01; N02;  
N02-A; N03

L118 ANSWER 55 OF 55 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 1988-279505 [40] WPIDS  
 DOC. NO. CPI: C1988-124417  
 TITLE: High temperature combustion catalyst for gas turbines -  
 comprises noble metal and three specific  
**promoters** on carrier layer.  
 DERWENT CLASS: J09  
 INVENTOR(S): FURUAY, T; HAYATA, T; ITO, M; KOEZUKA, J; OHKOSHI, A;  
 SHIZUKAWA, K; YAMANAKA, S  
 PATENT ASSIGNEE(S): (TOEP) TOKYO ELECTRIC POWER CO; (TOKE) TOSHIBA KK  
 COUNTRY COUNT: 3  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN	IPC
DE 3809226	A	19880929	(198840)*		15		
JP 63232848	A	19880928	(198845)				
JP 63232852	A	19880928	(198845)				
JP 63232853	A	19880928	(198845)				
JP 63232854	A	19880928	(198845)				
US 4857499	A	19890815	(198941)		11		
DE 3809226	C2	19941027	(199441)		12	B01J023-56	
JP 2557371	B2	19961127	(199701)		6	B01J023-89	
JP 2585253	B2	19970226	(199713)		4	B01J023-89	
JP 2597570	B2	19970409	(199719)		6	B01J023-42	
JP 2633554	B2	19970723	(199734)		5	B01J023-40	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 3809226	A	DE 1988-3809226	19880318
JP 63232848	A	JP 1987-64262	19870320
JP 63232852	A	JP 1987-65867	19870323
JP 63232853	A	JP 1987-64261	19870320
JP 63232854	A	JP 1987-65575	19870323
US 4857499	A	US 1988-170350	19880318
DE 3809226	C2	DE 1988-3809226	19880318
JP 2557371	B2	JP 1987-64261	19870320
JP 2585253	B2	JP 1987-65575	19870323
JP 2597570	B2	JP 1987-64262	19870320
JP 2633554	B2	JP 1987-65867	19870323

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 2557371	B2 Previous Publ.	JP 63232852
JP 2585253	B2 Previous Publ.	JP 63232853
JP 2597570	B2 Previous Publ.	JP 63232854
JP 2633554	B2 Previous Publ.	JP 63232848

PRIORITY APPLN. INFO: JP 1987-64261 19870320; JP  
 1987-64262 19870320; JP  
 1987-65575 19870323; JP  
 1987-65867 19870323

INT. PATENT CLASSIF.: B01J021-06; B01J023-74  
 MAIN: B01J023-40; B01J023-42; B01J023-56; B01J023-89  
 SECONDARY: B01J021-06; B01J023-44; B01J023-58; B01J023-63;  
 B01J023-64; B01J023-656; B01J023-74;

B01J037-03; F23R003-40

## BASIC ABSTRACT:

DE 3809226 A UPAB: 19930923

High temperature combustion catalyst (A) comprises a porous carrier layer on which are deposited a catalyst component (I) and three **promoters**

. The first **promoter** is a rare-earth metal (e.g. La, Ce, Pr or Nd) or alkaline earth metal (e.g. Ba, Sr or Ca), or their oxides, the second is Mg, Si or their oxides, and the third is a heavy metal (e.g. Ni, Zr, Co, Fe or Mn) or their oxides.

(I) is pref. Pd, Pt, or Rh at at least 10 weight% on the carrier layer which is e.g. Al, Ti, Si or Zr oxides, or Al titanate, and is deposited on a refractory ceramic substrate such as cordierite, mullite, alpha-alumina, ZrO<sub>2</sub> or TiO<sub>2</sub>. The first **promoter** is 5-20 weight% (as oxide) on the carrier and the other two are each up to 10 weight% based on (I).

USE/ADVANTAGE - (A) is useful in gas turbine combustion chambers. It has excellent ignition activity at low temperature, high activity and stability at elevated temperature and long active lifetime.

0/2

FILE SEGMENT: CPI

FIELD AVAILABILITY: AB

MANUAL CODES: CPI: J04-E04; N01-B; N01-D; N02; N02-A01; N02-B01;  
N02-C01; N02-E; N02-F01; N03; N03-B; N03-E

FILE 'HOME' ENTERED AT 16:08:59 ON 13 DEC 2005

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(FILE 'HOME' ENTERED AT 16:03:58 ON 12 DEC 2005)

FILE 'CAPLUS' ENTERED AT 16:04:59 ON 12 DEC 2005

SET LINE 250  
SET DETAIL OFF  
E US2001-851214/AP, PRN 25  
SET NOTICE 1000 SEARCH  
L1 1 SEA ABB=ON US2001-851214/AP  
SET NOTICE LOGIN SEARCH  
SET LINE LOGIN  
SET DETAIL LOGIN  
D SCAN

FILE 'REGISTRY' ENTERED AT 16:08:09 ON 12 DEC 2005

L2 1 SEA ABB=ON IRON/CN  
L3 1 SEA ABB=ON ALUMINUM/CN  
L4 1 SEA ABB=ON SILICON/CN  
L5 1 SEA ABB=ON ZIRCONIUM/CN  
L6 1 SEA ABB=ON TITANIUM/CN  
L7 1 SEA ABB=ON VANADIUM/CN  
L8 1 SEA ABB=ON MANGANESE/CN

FILE 'CAPLUS' ENTERED AT 16:08:23 ON 12 DEC 2005

L9 419952 SEA ABB=ON L2  
L10 367221 SEA ABB=ON L3  
L11 426702 SEA ABB=ON L4  
L12 69243 SEA ABB=ON L5  
L13 158215 SEA ABB=ON L6  
L14 84938 SEA ABB=ON L7  
L15 176602 SEA ABB=ON L8  
D SCAN L1  
L16 3299 SEA ABB=ON ALKALI METAL COMPOUNDS/CT  
L17 4449 SEA ABB=ON ALKALINE EARTH COMPOUNDS/CT  
L18 16505 SEA ABB=ON L2 (L) CAT/RL  
L19 5662 SEA ABB=ON L10 (L) CAT/RL  
L20 1508 SEA ABB=ON L11 (L) CAT/RL  
L21 2964 SEA ABB=ON L12 (L) CAT/RL  
L22 5300 SEA ABB=ON L13 (L) CAT/RL  
L23 5341 SEA ABB=ON L14 (L) CAT/RL  
L24 6851 SEA ABB=ON L15 (L) CAT/RL  
L25 609 SEA ABB=ON L16 (L) CAT/RL  
L26 557 SEA ABB=ON L17 (L) CAT/RL  
L27 5014 SEA ABB=ON L18 AND (L19 OR L20 OR L21 OR L22 OR L23 OR L24 OR  
L25 OR L26)  
L28 3552 SEA ABB=ON (L19 AND (L20 OR L21 OR L22 OR L23)) OR (L20 AND  
(L21 OR L22 OR L23)) OR (L21 AND (L22 OR L23)) OR (L22 AND  
L23)  
L29 31 SEA ABB=ON L18 AND L25  
L30 40 SEA ABB=ON L18 AND L26  
L31 1477 SEA ABB=ON L18 AND L28  
L32 40 SEA ABB=ON L26 AND L18  
L33 8 SEA ABB=ON L24 AND L9 AND L28 AND (L25 OR L26)

FILE 'REGISTRY' ENTERED AT 16:14:07 ON 12 DEC 2005

L34 1 SEA ABB=ON CALCIUM/CN  
L35 1 SEA ABB=ON MAGNESIUM/CN

FILE 'CAPLUS' ENTERED AT 16:14:23 ON 12 DEC 2005

L36 2475 SEA ABB=ON L34 (L) CAT/RL  
 L37 4038 SEA ABB=ON L35 (L) CAT/RL  
 L38 359 SEA ABB=ON L24 AND L9 AND L28 AND ((L25 OR L26) OR (L36 OR L37))  
 D SCAN L1  
 L39 113422 SEA ABB=ON PROMOTER#/OBI  
 L40 13 SEA ABB=ON (L19 OR L20 OR L21 OR L22 OR L23) (L)L39 AND L38  
 L41 311 SEA ABB=ON L18 (L)L39  
 L42 6 SEA ABB=ON L40 NOT L41  
 D SCAN  
 D SCAN TI L1  
 L43 1 SEA ABB=ON L42 AND NITRILES/TI  
 D BIB  
 D SCAN  
 L44 6426 SEA ABB=ON IRON CATALYST#/OBI  
 D QUE L41  
 L45 1 SEA ABB=ON L28 AND L44 AND L18 AND (L19 OR L20 OR L21 OR L22 OR L23) (L)L39  
 L46 1 SEA ABB=ON L44 AND (L19 OR L20 OR L21 OR L22 OR L23) (L)L39 AND L28  
 D QUE  
 L47 30 SEA ABB=ON L44 AND L28  
 L48 2 SEA ABB=ON L44 AND L28 AND L39  
 D QUE L33  
 L49 86 SEA ABB=ON (L19 OR L20 OR L21 OR L22 OR L23) (L)L39 AND L28  
 L50 43 SEA ABB=ON L49 AND L18  
 L51 34 SEA ABB=ON L24 AND L50  
 L52 12 SEA ABB=ON L51 AND ((L25 OR L26) OR (L36 OR L37))  
 D SCAN TI  
 D AB L1  
 L53 81970 SEA ABB=ON .PERCENT./BI  
 L54 0 SEA ABB=ON L53 AND L1  
 D SCAN L1

FILE 'REGISTRY' ENTERED AT 16:30:02 ON 12 DEC 2005

L55 1 SEA ABB=ON MAGNETITE/CN

FILE 'CAPLUS' ENTERED AT 16:30:06 ON 12 DEC 2005

L56 227 SEA ABB=ON L55/D  
 L57 0 SEA ABB=ON (L44 OR L18) AND L56 AND L28 AND L24  
 D QUE  
 L58 2 SEA ABB=ON (L44 OR L18) AND L56 AND L28  
 L59 0 SEA ABB=ON (L44 OR L18) AND L56 AND (L19 OR L20 OR L21 OR L22 OR L23) AND L24

INDEX '1MOBILITY, 2MOBILITY, ABI-INFORM, ADISCTI, AEROSPACE, AGRICOLA, ALUMINIUM, ANABSTR, ANTE, APOLLIT, AQUALINE, AQUASCI, AQUIRE, BABS, BIBLIODATA, BIOBUSINESS, BIOCOMMERCE, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, BLADB, CABA, CANCERLIT, ...' ENTERED AT 16:32:50 ON 12 DEC 2005

SEA IRON (2A)CATALY?

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8 FILE 1MOBILITY  
 44 FILE ABI-INFORM  
 9 FILE ADISCTI  
 187 FILE AEROSPACE  
 92 FILE AGRICOLA  
 7 FILE ALUMINIUM  
 94 FILE ANABSTR  
 71 FILE ANTE

79	FILE APOLLIT
90	FILE AQUALINE
30	FILE AQUASCI
797	FILE BABS
4	FILE BIBLIODATA
50	FILE BIOBUSINESS
2	FILE BIOCOMMERCE
43	FILE BIOENG
1501	FILE BIOSIS
35	FILE BIOTECHABS
35	FILE BIOTECHDS
304	FILE BIOTECHNO
233	FILE CABA
159	FILE CANCERLIT
27	FILE CAOLD
29165	FILE CAPLUS
1901	FILE CASREACT
73	FILE CBNB
941	FILE CEABA-VTB
38	FILE CEN
42	FILE CERAB
119	FILE CHEMINFORMRX
85	FILE CIN
12	FILE CIVILENG
2225	FILE COMPENDEX
3	FILE COMPUAB
134	FILE CONFSCI
4	FILE COPPERLIT
16	FILE CORROSION
1	FILE CROPB
15	FILE CROPU
11	FILE CSNB
30	FILE DDFB
80	FILE DDFU
13	FILE DGENE
405	FILE DISSABS
1	FILE DKF
787	FILE DPCI
30	FILE DRUGB
119	FILE DRUGU
11	FILE ELCOM
63	FILE EMA
16	FILE EMBAL
1277	FILE EMBASE
3603	FILE ENCOMPLIT
1134	FILE ENCOMPAT
4388	FILE ENERGY
127	FILE ENTEC
41	FILE ENVIROENG
1686	FILE EPFULL
639	FILE ESBIODBASE
1	FILE FRANCEPAT
10	FILE FRFULL
67	FILE FROSTI
60	FILE FSTA
409	FILE GBFULL
236	FILE GENBANK
30	FILE GEOREF
7	FILE HEALSAFE
2	FILE ICONDA



2097 FILE IFIPAT  
301 FILE INIS  
1009 FILE INPADO  
371 FILE INSPEC  
146 FILE INSPHYS  
34 FILE INVESTEXT  
8 FILE IPA  
2 FILE ITRD  
623 FILE JAPIO  
792 FILE JICST-EPLUS  
47 FILE KOREAPAT  
8 FILE KOSMET  
295 FILE LIFESCI  
1 FILE LISA  
5 FILE MATBUS  
9 FILE MECHENG  
1234 FILE MEDLINE  
142 FILE METADEX  
5 FILE NAPRALERT  
40 FILE NIOSHTIC  
136 FILE NLDB  
582 FILE NTIS  
4 FILE OCEAN  
50 FILE PAPERCHEM2  
2467 FILE PASCAL  
6 FILE PATDPAFULL  
1989 FILE PCTFULL  
2 FILE PHIN  
30 FILE PIRA  
57 FILE POLLUAB  
401 FILE PROMT  
156 FILE RAPRA  
75 FILE RUSSIAPAT  
4801 FILE SCISEARCH  
39 FILE SOLIDSTATE  
2 FILE SYNTHLINE  
135 FILE TEMA  
36 FILE TEXTILETECH  
3238 FILE TOXCENTER  
6 FILE TRIBO  
71 FILE TULSA  
18 FILE TULSA2  
2 FILE UFORDAT  
12 FILE ULIDAT  
7298 FILE USPATFULL  
620 FILE USPAT2  
3 FILE VETU  
79 FILE WATER  
5 FILE WELDASEARCH  
3102 FILE WPIDS  
10 FILE WPIFV  
3102 FILE WPINDEX  
76 FILE WSCA  
32 FILE WTEXTILES

L60 QUE ABB=ON IRON (2A) CATALY?

-----  
D RANK

FILE 'STNGUIDE' ENTERED AT 16:34:42 ON 12 DEC 2005

Searched by Barb O'Bryen, STIC 2-2518

FILE 'WPIDS' ENTERED AT 16:36:23 ON 12 DEC 2005

L61 63 SEA ABB=ON VOIT G?/AU  
L62 1371 SEA ABB=ON FISCHER R?/AU  
L63 91 SEA ABB=ON BASSLER P?/AU  
L64 15 SEA ABB=ON L62 AND L63 AND L61  
D TRIAL 1-15  
E A/DC  
E A41/DC  
E E/DC  
E J/DC  
L65 2473 SEA ABB=ON B01J023-74/IC  
L66 644 SEA ABB=ON B01J023-745/IC  
L67 1061 SEA ABB=ON B01J023-78/IC  
L68 558 S L66 NOT L65  
L68 74848 SEA ABB=ON MANGANESE  
L69 279221 SEA ABB=ON ALUMINUM  
L70 300601 SEA ABB=ON SILICON  
L71 48926 SEA ABB=ON ZIRCONIUM  
L72 141500 SEA ABB=ON TITANIUM  
L73 34301 SEA ABB=ON VANADIUM  
L74 120637 SEA ABB=ON (L69 AND (L70 OR L71 OR L72 OR L73)) OR (L70 AND  
(L71 OR L72 OR L73)) OR (L71 AND (L72 OR L73)) OR (L72 AND  
L73)  
L75 86 SEA ABB=ON L74 AND L68 AND (L65 OR L66 OR L67)  
L76 38125 SEA ABB=ON PROMOTER#  
L77 11 SEA ABB=ON L75 AND L76  
D TRIAL 1-11  
L78 2988 SEA ABB=ON IRON(2A)CATALYST#  
L79 365 SEA ABB=ON (L69 OR L70 OR L71 OR L72 OR L73) (3A)L76  
L80 6 SEA ABB=ON L78 AND L79 AND L68  
D TRIAL 1-6  
SAVE TEMP L80 SAC214WPI1/A  
SAVE TEMP L77 SAC214WPI2/A

FILE 'CAPLUS' ENTERED AT 16:51:46 ON 12 DEC 2005

SAVE TEMP L33 SAC214CA1/A  
SAVE TEMP L48 SAC214CA2/A  
SAVE TEMP L58 SAC214CA3/A

FILE HOME

FILE CAPLUS

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FILE COVERS 1907 - 12 Dec 2005 VOL 143 ISS 25  
FILE LAST UPDATED: 11 Dec 2005 (20051211/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

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FILE REGISTRY

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 11 DEC 2005 HIGHEST RN 869700-38-9

DICTIONARY FILE UPDATES: 11 DEC 2005 HIGHEST RN 869700-38-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

```
*****
*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,   *
* effective March 20, 2005. A new display format, IDERL, is now     *
* available and contains the CA role and document type information.  *
*
*****
```

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

FILE STNINDEX

FILE STNGUIDE

FILE CONTAINS CURRENT INFORMATION.

LAST RELOADED: Dec 9, 2005 (20051209/UP).

FILE WPIDS

FILE LAST UPDATED: 8 DEC 2005 <20051208/UP>

MOST RECENT DERWENT UPDATE: 200579 <200579/DW>

DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,  
PLEASE VISIT:

[http://www.stn-international.de/training\\_center/patents/stn\\_guide.pdf](http://www.stn-international.de/training_center/patents/stn_guide.pdf) <<<

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DOCUMENTATION NOW AVAILABLE IN DERWENT WORLD PATENTS INDEX  
FIRST VIEW - FILE WPIFV.

FOR FURTHER DETAILS: <http://www.thomsonderwent.com/dwpifv> <<<

>>> THE CPI AND EPI MANUAL CODES HAVE BEEN REVISED FROM UPDATE 200501.

PLEASE CHECK:

<http://thomsonderwent.com/support/dwpioref/reftools/classification/code-rev>  
FOR DETAILS. <<<

>>> PLEASE BE AWARE OF THE NEW IPC REFORM IN 2006, SEE

[http://www.stn-international.de/stndatabases/details/ipc\\_reform.html](http://www.stn-international.de/stndatabases/details/ipc_reform.html) <

=> => d his nofile

(FILE 'HOME' ENTERED AT 15:49:22 ON 13 DEC 2005)

FILE 'LCA' ENTERED AT 15:49:29 ON 13 DEC 2005

E ALKALINE EARTH/CT

E E12+ALL

FILE 'CAPLUS' ENTERED AT 15:50:08 ON 13 DEC 2005

E ALKALINE EARTH/CT

E ALKALINE EARTH METALS/CT

E E3+ALL

E ALKALI METALS/CT

E E3+ALL

FILE 'STNGUIDE' ENTERED AT 15:50:49 ON 13 DEC 2005

FILE 'JICST-EPLUS, PASCAL, BIOSIS, CONFSCI, DISSABS, COMPENDEX, JAPIO, INSPEC, METADEX, CEABA-VTB, SCISEARCH' ENTERED AT 15:58:01 ON 13 DEC 2005

L1 13053 SEA ABB=ON (FE OR IRON OR FERROUS OR FERRIC) (2A) CATALYST#  
L2 851441 SEA ABB=ON ALUMINUM  
L3 1284065 SEA ABB=ON SILICON  
L4 179905 SEA ABB=ON ZIRCONIUM  
L5 535670 SEA ABB=ON TITANIUM  
L6 151665 SEA ABB=ON VANADIUM  
L7 363964 SEA ABB=ON PROMOTER#  
L8 317782 SEA ABB=ON MANGANESE  
L9 255922 SEA ABB=ON (ALKALINE EARTH OR ALKALI) (W) METAL#  
L10 1889598 SEA ABB=ON SODIUM OR RUBIDIUM OR POTASSIUM OR LITHIUM OR  
FRANCIUM  
L11 505683 SEA ABB=ON CESIUM OR STRONTIUM OR RADIUM OR BERYLLIUM OR  
BARIUM  
L12 404934 SEA ABB=ON MAGNESIUM  
L13 1173837 SEA ABB=ON CALCIUM  
L14 263785 SEA ABB=ON (L2 AND (L3 OR L4 OR L5 OR L6)) OR (L3 AND (L4 OR  
L5 OR L6)) OR (L4 AND (L5 OR L6)) OR (L5 AND L6)  
L15 383 SEA ABB=ON (L2 OR L3 OR L4 OR L5 OR L6) (5A) L7  
L16 0 SEA ABB=ON L1 AND L14 AND L15 AND L8  
L17 0 SEA ABB=ON L1 AND L14 AND L15  
L18 15 SEA ABB=ON L1 AND L15  
L19 11 SEA ABB=ON L1 AND L14 AND L8  
L20 182 SEA ABB=ON L1 AND (L2 OR L3 OR L4 OR L5 OR L6) AND (L9 OR L10  
OR L11 OR L12 OR L13)  
L21 11 SEA ABB=ON L20 AND L8  
L22 20 SEA ABB=ON L21 OR L19  
L23 35 SEA ABB=ON L18 OR L19 OR L21  
L24 27 DUP REM L23 (8 DUPLICATES REMOVED)  
ANSWERS '1-2' FROM FILE JICST-EPLUS  
ANSWERS '3-10' FROM FILE PASCAL  
ANSWERS '11-12' FROM FILE DISSABS

ANSWERS '13-16' FROM FILE COMPENDEX  
ANSWERS '17-23' FROM FILE JAPIO  
ANSWERS '24-26' FROM FILE CEABA-VTB  
ANSWER '27' FROM FILE SCISEARCH

FILE 'CAPLUS' ENTERED AT 16:05:34 ON 13 DEC 2005  
ACT SAC214CA1/A

-----  
L25( 1)SEA FILE=REGISTRY ABB=ON IRON/CN  
L26( 1)SEA FILE=REGISTRY ABB=ON ALUMINUM/CN  
L27( 1)SEA FILE=REGISTRY ABB=ON SILICON/CN  
L28( 1)SEA FILE=REGISTRY ABB=ON ZIRCONIUM/CN  
L29( 1)SEA FILE=REGISTRY ABB=ON TITANIUM/CN  
L30( 1)SEA FILE=REGISTRY ABB=ON VANADIUM/CN  
L31( 1)SEA FILE=REGISTRY ABB=ON MANGANESE/CN  
L32( 419952)SEA FILE=CAPLUS ABB=ON L25  
L33( 367221)SEA FILE=CAPLUS ABB=ON L26  
L34( 426702)SEA FILE=CAPLUS ABB=ON L27  
L35( 69243)SEA FILE=CAPLUS ABB=ON L28  
L36( 158215)SEA FILE=CAPLUS ABB=ON L29  
L37( 84938)SEA FILE=CAPLUS ABB=ON L30  
L38( 176602)SEA FILE=CAPLUS ABB=ON L31  
L39( 3299)SEA FILE=CAPLUS ABB=ON ALKALI METAL COMPOUNDS/CT  
L40( 4449)SEA FILE=CAPLUS ABB=ON ALKALINE EARTH COMPOUNDS/CT  
L41( 5662)SEA FILE=CAPLUS ABB=ON L33 (L) CAT/RL  
L42( 1508)SEA FILE=CAPLUS ABB=ON L34 (L) CAT/RL  
L43( 2964)SEA FILE=CAPLUS ABB=ON L35 (L) CAT/RL  
L44( 5300)SEA FILE=CAPLUS ABB=ON L36 (L) CAT/RL  
L45( 5341)SEA FILE=CAPLUS ABB=ON L37 (L) CAT/RL  
L46( 6851)SEA FILE=CAPLUS ABB=ON L38 (L) CAT/RL  
L47( 609)SEA FILE=CAPLUS ABB=ON L39 (L) CAT/RL  
L48( 557)SEA FILE=CAPLUS ABB=ON L40 (L) CAT/RL  
L49( 3552)SEA FILE=CAPLUS ABB=ON (L41 AND (L42 OR L43 OR L44 OR L45  
L50 8 SEA ABB=ON L46 AND L32 AND L49 AND (L47 OR L48)

-----  
ACT SAC214CA2/A

-----  
L51( 1)SEA FILE=REGISTRY ABB=ON ALUMINUM/CN  
L52( 1)SEA FILE=REGISTRY ABB=ON SILICON/CN  
L53( 1)SEA FILE=REGISTRY ABB=ON ZIRCONIUM/CN  
L54( 1)SEA FILE=REGISTRY ABB=ON TITANIUM/CN  
L55( 1)SEA FILE=REGISTRY ABB=ON VANADIUM/CN  
L56( 367221)SEA FILE=CAPLUS ABB=ON L51  
L57( 426702)SEA FILE=CAPLUS ABB=ON L52  
L58( 69243)SEA FILE=CAPLUS ABB=ON L53  
L59( 158215)SEA FILE=CAPLUS ABB=ON L54  
L60( 84938)SEA FILE=CAPLUS ABB=ON L55  
L61( 5662)SEA FILE=CAPLUS ABB=ON L56 (L) CAT/RL  
L62( 1508)SEA FILE=CAPLUS ABB=ON L57 (L) CAT/RL  
L63( 2964)SEA FILE=CAPLUS ABB=ON L58 (L) CAT/RL  
L64( 5300)SEA FILE=CAPLUS ABB=ON L59 (L) CAT/RL  
L65( 5341)SEA FILE=CAPLUS ABB=ON L60 (L) CAT/RL  
L66( 3552)SEA FILE=CAPLUS ABB=ON (L61 AND (L62 OR L63 OR L64 OR L65  
L67( 113422)SEA FILE=CAPLUS ABB=ON PROMOTER#/OBI  
L68( 6426)SEA FILE=CAPLUS ABB=ON IRON CATALYST#/OBI  
L69 2 SEA ABB=ON L68 AND L66 AND L67

-----  
ACT SAC214CA3/A

-----  
L70( 1)SEA FILE=REGISTRY ABB=ON IRON/CN

L71( 1)SEA FILE=REGISTRY ABB=ON ALUMINUM/CN  
 L72( 1)SEA FILE=REGISTRY ABB=ON SILICON/CN  
 L73( 1)SEA FILE=REGISTRY ABB=ON ZIRCONIUM/CN  
 L74( 1)SEA FILE=REGISTRY ABB=ON TITANIUM/CN  
 L75( 1)SEA FILE=REGISTRY ABB=ON VANADIUM/CN  
 L76( 367221)SEA FILE=CAPLUS ABB=ON L71  
 L77( 426702)SEA FILE=CAPLUS ABB=ON L72  
 L78( 69243)SEA FILE=CAPLUS ABB=ON L73  
 L79( 158215)SEA FILE=CAPLUS ABB=ON L74  
 L80( 84938)SEA FILE=CAPLUS ABB=ON L75  
 L81( 16505)SEA FILE=CAPLUS ABB=ON L70(L)CAT/RL  
 L82( 5662)SEA FILE=CAPLUS ABB=ON L76(L)CAT/RL  
 L83( 1508)SEA FILE=CAPLUS ABB=ON L77(L)CAT/RL  
 L84( 2964)SEA FILE=CAPLUS ABB=ON L78(L)CAT/RL  
 L85( 5300)SEA FILE=CAPLUS ABB=ON L79(L)CAT/RL  
 L86( 5341)SEA FILE=CAPLUS ABB=ON L80(L)CAT/RL  
 L87( 3552)SEA FILE=CAPLUS ABB=ON (L82 AND (L83 OR L84 OR L85 OR L86  
 L88( 6426)SEA FILE=CAPLUS ABB=ON IRON CATALYST#/OBI  
 L89( 1)SEA FILE=REGISTRY ABB=ON MAGNETITE/CN  
 L90( 227)SEA FILE=CAPLUS ABB=ON L89/D  
 L91 2 SEA ABB=ON (L88 OR L81) AND L90 AND L87  
 -----

FILE 'WPIDS' ENTERED AT 16:06:10 ON 13 DEC 2005  
 ACT SAC214WPI1/A  
 -----

L92( 74848)SEA FILE=WPIDS ABB=ON MANGANESE  
 L93( 279221)SEA FILE=WPIDS ABB=ON ALUMINUM  
 L94( 300601)SEA FILE=WPIDS ABB=ON SILICON  
 L95( 48926)SEA FILE=WPIDS ABB=ON ZIRCONIUM  
 L96( 141500)SEA FILE=WPIDS ABB=ON TITANIUM  
 L97( 34301)SEA FILE=WPIDS ABB=ON VANADIUM  
 L98( 38125)SEA FILE=WPIDS ABB=ON PROMOTER#  
 L99( 2988)SEA FILE=WPIDS ABB=ON IRON(2A)CATALYST#  
 L100( 365)SEA FILE=WPIDS ABB=ON (L93 OR L94 OR L95 OR L96 OR L97) (3  
 L101 6 SEA ABB=ON L99 AND L100 AND L92  
 -----

ACT SAC214WPI2/A

L102( 2473)SEA FILE=WPIDS ABB=ON B01J023-74/IC  
 L103( 644)SEA FILE=WPIDS ABB=ON B01J023-745/IC  
 L104( 1061)SEA FILE=WPIDS ABB=ON B01J023-78/IC  
 L105( 74848)SEA FILE=WPIDS ABB=ON MANGANESE  
 L106( 279221)SEA FILE=WPIDS ABB=ON ALUMINUM  
 L107( 300601)SEA FILE=WPIDS ABB=ON SILICON  
 L108( 48926)SEA FILE=WPIDS ABB=ON ZIRCONIUM  
 L109( 141500)SEA FILE=WPIDS ABB=ON TITANIUM  
 L110( 34301)SEA FILE=WPIDS ABB=ON VANADIUM  
 L111( 120637)SEA FILE=WPIDS ABB=ON (L106 AND (L107 OR L108 OR L109 OR L110)  
 L112( 86)SEA FILE=WPIDS ABB=ON L111 AND L105 AND (L102 OR L103 OR L104)  
 L113( 38125)SEA FILE=WPIDS ABB=ON PROMOTER#  
 L114 11 SEA ABB=ON L112 AND L113  
 -----

FILE 'STNGUIDE' ENTERED AT 16:06:40 ON 13 DEC 2005

FILE 'JICST-EPLUS, PASCAL, BIOSIS, CONFSCI, DISSABS, COMPENDEX, JAPIO,  
 INSPEC, METADEX, CEABA-VTB, SCISEARCH' ENTERED AT 16:07:42 ON 13 DEC 2005

D QUE L18

D QUE L19

L115 D QUE L21  
35 SEA ABB=ON L18 OR L19 OR L21

FILE 'CAPLUS' ENTERED AT 16:07:50 ON 13 DEC 2005  
D QUE L50  
D QUE L69  
D QUE L91

L116 12 SEA ABB=ON L50 OR L69 OR L91

FILE 'WPIDS' ENTERED AT 16:07:51 ON 13 DEC 2005  
D QUE L101  
D QUE L114

L117 16 SEA ABB=ON L101 OR L114

FILE 'CAPLUS, JICST-EPLUS, PASCAL, DISSABS, COMPENDEX, JAPIO, CEABA-VTB,  
SCISEARCH, WPIDS' ENTERED AT 16:08:09 ON 13 DEC 2005

L118 55 DUP REM L116 L115 L117 (8 DUPLICATES REMOVED)  
ANSWERS '1-12' FROM FILE CAPLUS  
ANSWERS '13-14' FROM FILE JICST-EPLUS  
ANSWERS '15-22' FROM FILE PASCAL  
ANSWERS '23-24' FROM FILE DISSABS  
ANSWERS '25-28' FROM FILE COMPENDEX  
ANSWERS '29-35' FROM FILE JAPIO  
ANSWERS '36-38' FROM FILE CEABA-VTB  
ANSWER '39' FROM FILE SCISEARCH  
ANSWERS '40-55' FROM FILE WPIDS  
D IBIB ED ABS HITIND 1-12  
D IALL 13-55

FILE 'HOME' ENTERED AT 16:08:59 ON 13 DEC 2005

=>